Grasshoppers and related species Recording Scheme of Britain and Ireland

grasshoppers crickets stick-insects earwigs cockroaches mantids

www.orthoptera.org.uk

Newsletter 32, Autumn 2015

Contents

1. Orthopterists' Meeting

Everyone is very welcome to attend the annual Orthopterists' meetings, whether to present research or just to listen and meet others. This year's meeting will be held in the Neil Chalmers Room at the London Natural History Museum on **Wednesday 4th November 2015, 1:30-5:30pm**, followed by drinks and a cold buffet (**PLEASE NOTE** the date is not 5th November as mistakenly advertised in Antenna). We are looking forward to a great line-up of talks and displays – provisional programme below. We now have sufficient talks, but please email the convenor Björn Beckmann at orthoptera@ceh.ac.uk if you would like to bring a poster or display.

Provisional programme

1:30 Arrival and tea; posters & displays

2:00 Welcome
2:05 Ed Baker (Natural History Museum London): BioAcoustica: an online repository and analysis platform for wildlife sound
2:30 Berthold Hedwig (University of Cambridge): How crickets recognise each other's calls – An auditory feature detection circuit for temporal pattern recognition in crickets
2:55 Julie Sarmiento-Ponce (University of Cambridge): Navigating by sound – Comparison of phonotaxis behaviour in four cricket lines
3:05 Tim Gardiner (Environment Agency): Conservation of sea wall Orthoptera

3:30 Break; posters & displays

4:00 Karim Vahed (University of Derby): Notes on the life cycle of the Scaly Cricket *Pseudomogoplistes vicentae* part 2
4:25 Siobhan Hillman (University of Derby): The function of mate guarding in the Southern Field Cricket, *Gryllus bimaculatus*
4:40 Megan Shersby (naturalist and blogger): A young naturalist's journey into Orthoptera
4:55 Björn Beckmann (Biological Records Centre): New research on the rapid range expansion of Long-winged Conehead (*Conocephalus discolor*) and Roesel's Bush-cricket (*Metrioptera roeselii*)
5:15 David Walker (Dungness Bird Observatory): Tree Cricket (*Oecanthus pellucens*) and Sickle-bearing Bush-cricket (*Phaneroptera falcata*) – here to stay?
5:30 Drinks, followed by supper
8:00 Finish

Posters / displays

- Tim Gardiner (Environment Agency): Sea Wall management handbook
- Tim Gardiner (Environment Agency): Book: Insect Poetry
- Julie Sarmiento-Ponce (University of Cambridge): Poster: Comparison of phonotaxis behaviour in four cricket lines
- Brian Laney: Display: Two of the UK's naturalised stick insect species
- Jon Delf (University of Liverpool): Display: How to captive-breed native bush-crickets successfully; new findings on parthenogenesis and polymorphisms.

Registration

Please register by sending an email to orthoptera@ceh.ac.uk, or by post to Björn Beckmann, Centre for Ecology & Hydrology, Wallingford OX10 8BB, providing the following details:

- your first name, surname and institution if applicable (for name badge)
- title of talk or poster, if you would like to present something
- indicate whether you will be staying for the buffet or not, and any special dietary requirements

Cost

- Either a full price of £14.00 to include a cold buffet with wine, and tea and biscuits during the afternoon
- Or a reduced price of £4.00 to include tea and biscuits only, if you are not staying for the buffet.

Payment

- either send a cheque made payable to the Royal Entomological Society to: Kirsty Whiteford, Royal Entomological Society, The Mansion House, Chiswell Green Lane, St Albans, Herts, AL2 3NS
- or pay by bank transfer: Royal Entomological Society, sort code 30-97-25, account number 01921533. Please ensure that you include your name and "Orthoptera SIG" for reference.
- or pay by card over the phone. Please phone Kirsty on +44 (0)1727 899387. There is a 2% admin charge for credit cards, no charge for debit cards.

Directions

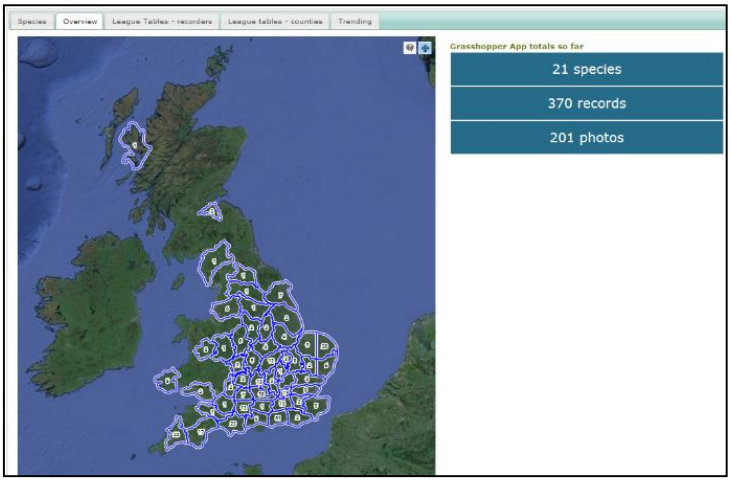
The meeting will be held in the Neil Chalmers Room in the Natural History Museum London. Use the Cromwell Road entrance into the Central Hall; turn left/west into Waterhouse Way to the Darwin Centre; continue down the steps by the Cocoon, then turn right and walk towards the steps at the north end; on the left, under these steps is the door into the Neil Chalmers Room and reception area, where refreshments will be served before/during the meeting. In the evening, the Cromwell Road entrance is locked at 6pm; if you leave after this time you must be escorted through locked doors, or incur the wrath of Security!

Hope to see you there!

2. New mobile phone app "iRecord Grasshoppers"

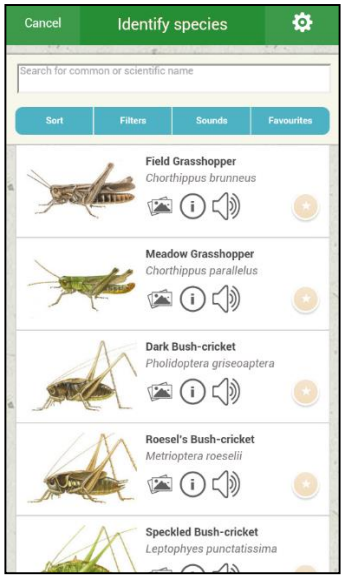
We are very pleased about the release of "iRecord Grasshoppers", our very own mobile phone app for identifying and recording grasshoppers and related insects in Britain and Ireland. The app was published in August 2015 and is available free for Android and Apple devices from the app stores. It comprises a field guide with species accounts, identification tips, photos, labelled illustrations and sound recordings, and allows submission of single- and multi-species sightings to the iRecord system www.brc.ac.uk/irecord. A photo can be attached to each record to aid verification.

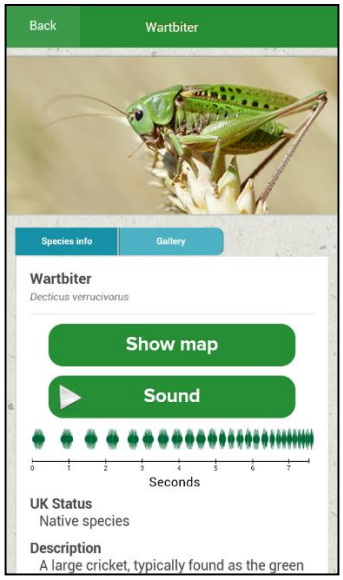
Many thanks to all who have already submitted records through the app – over 350 sightings and 200 photos to date. There is a summary of sightings at www.brc.ac.uk/irecord/grasshopper-app-summary with photos and league tables of species, recorders and counties.

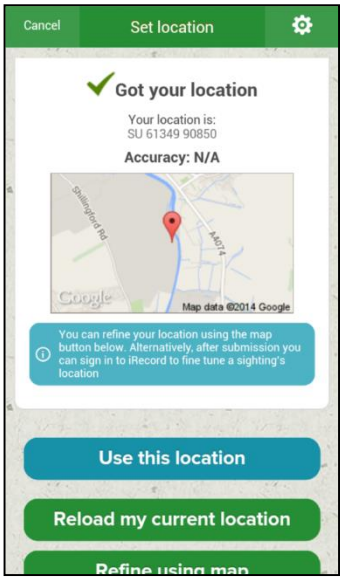


We are very interested in hearing your feedback and suggestions – please email orthoptera@ceh.ac.uk.

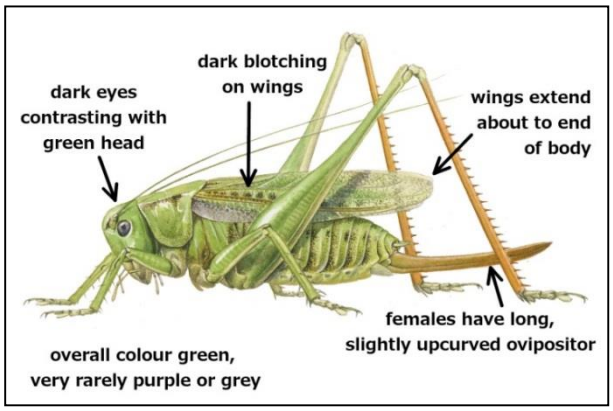
Please continue to spread the word about the app, for example through your local natural history group, and encourage its use to record all sightings!

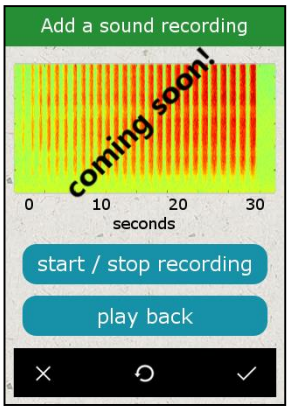






A big thank you to all who have contributed to the making of the app – many photographers allowed use of their images, Denys Ovenden (http://denysovenden.co.uk) provided the watercolour illustrations, Baudewijn Odé the sound recordings, David Ragge and Dave Kilbey the sound diagrams, Colin Harrower the maps, and Jim Bacon and John van Breda prepared the iRecord database to work with the app. Jasper Tredgold and Dave Kilbey of Natural Apptitude Ltd. developed (programmed) the app. Björn Beckmann assembled the content and texts, labelled and formatted illustrations and photos, and he and Jim Bacon applied for funding and oversaw the project.



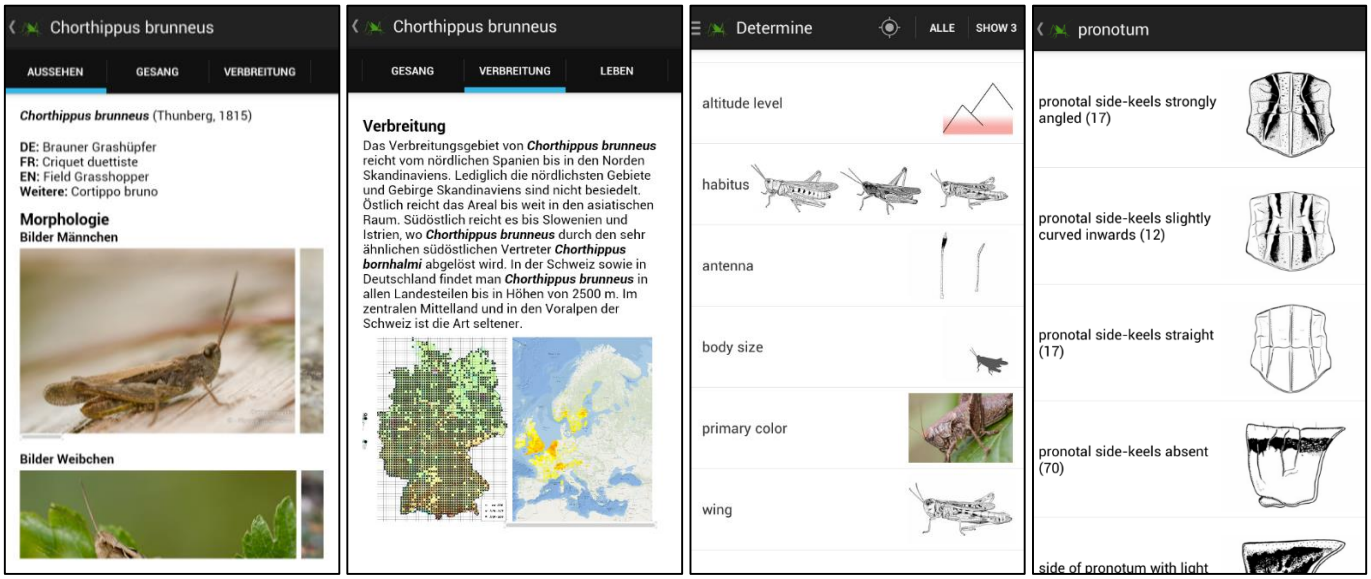


Davide Zilli and Alex Rogers of Southampton University have developed a sound recording plugin that is currently being added to the app – a version update will be released soon, and users can then make and submit **sound recordings.**

The app was funded by the Centre for Ecology & Hydrology (CEH), the Joint Nature Conservation Committee (JNCC), the Natural Environment Research Council (NERC), the Biological Records Centre (BRC), and Natural Apptitude Ltd.

Swiss / German Orthoptera app

If you are interested in continental Orthoptera, you may find another new app useful – "Orthoptera" – details at www.orthoptera.ch/info-app-wiki/orthoptera-app. It covers the 119 species that occur in Switzerland and Germany. It is available from app stores at a cost of about £9. It has a very detailed key to help identification; a large number of excellent species and habitat photos; sound recordings; drawings to illustrate key features; and Swiss, German and European distribution maps. The **language** of the species accounts and general sections is **German**, but the **identification key** and species names are also available in **English**, French and Italian (defaulting to your phone's language). The species are also listed at www.orthoptera.ch/arten.



3. Recording Scheme News

Records received in 2015 and progress with new atlas

A big thank you to all who have sent in their observations this year, along with many excellent photos – a total of >2,000 records received online alone so far, including many from new recorders. Please continue to do so.

We have reviewed progress with the new UK and Ireland atlas again, and have decided to **extend the period of data collection for the atlas by another two years to include the 2016 and 2017 field seasons**. There are a number of reasons for this, above all the need to continue to collate records and fill gaps in coverage, and the encouraging increase in many recording activities. A 2017/2018 publication date will also coincide with the 20th anniversary of the previous atlas, and the 50th anniversary of the establishment of the recording scheme!

We are very pleased to see the concerted efforts in progress to address the fact that there are still many areas that are poorly recorded or unrecorded, for example in Ireland and north-east Scotland. **We will produce updated draft atlas maps by next spring (2016), highlighting under-recorded areas for the next two field seasons**. There are also some ongoing studies to evaluate the status of our rarest orthopterans, and a more comprehensive picture of the distribution of species such as the Large Marsh Grasshopper, Scaly Cricket, Wart-biter and Mole Cricket will be welcome additions to the atlas.

We hope that the new mobile app "iRecord Grasshoppers" will help to increase submissions of records to the scheme, including from under-recorded regions.

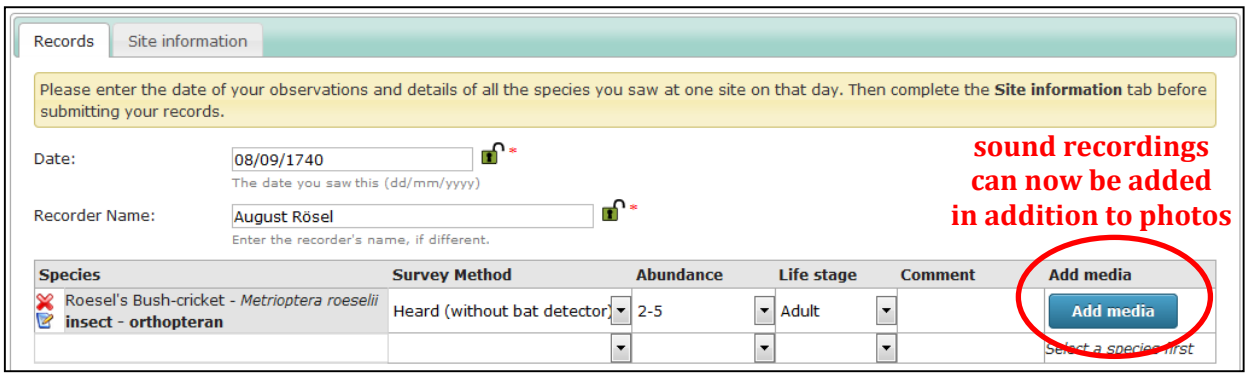
A set of draft atlas maps were appended to the Spring 2013 newsletter, which you can download at www.orthoptera.org.uk/recording/sites/default/files/Grasshoppers_and_related_insects_Newsletter_Spring_2013.pdf. We hope the maps illustrate some of the dramatic changes affecting Orthoptera and will inspire you to fill gaps in recording.

Recording your sightings

There are many ways to submit your records:

- Log your observations at www.orthoptera.org.uk/survey or www.brc.ac.uk/irecord (records submitted on either website will be visible on the other).

  The former now accepts **sound files** as well as photos to help confirm species identifications – use the "add media" button to do so. The preferred format for sound recordings is .wav files (because they preserve all details of the sound for future analysis).



- Use your mobile phone to record your observations with the iRecord Orthoptera app www.brc.ac.uk/article/irecord-grasshoppers-mobile-app
- If you have records in a digital format like Excel, Recorder, or MapMate, please email them to orthoptera@ceh.ac.uk or info@biodiversityireland.ie.
- If you have records on paper recording cards, please send them to one of the following addresses:

  Biological Records Centre
  Centre for Ecology & Hydrology
  Wallingford
  OX10 8BB
  UK

  National Biodiversity Data Centre
  Beechfield House
  Carriganore WIT West Campus
  County Waterford
  Ireland

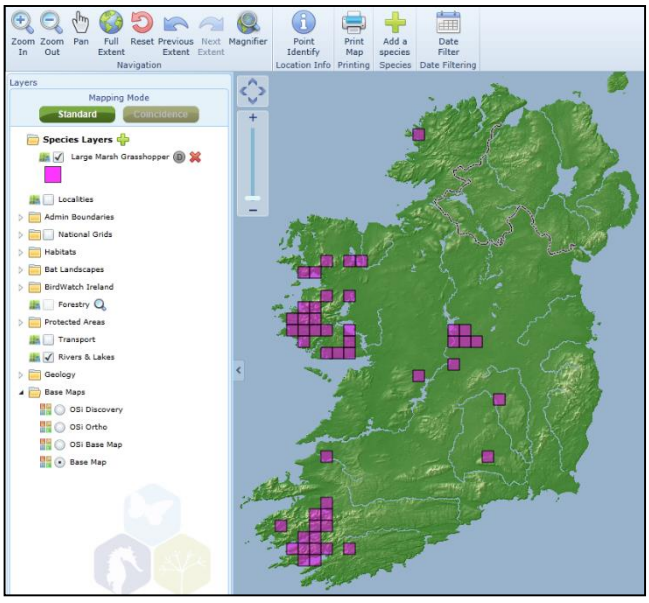
- If you send your records centrally to the scheme in any of the above ways, they will be shared with county recorders and Local Record Centres. Similarly, if you send your records to your county recorder, there is no need to send them in any other way.
- Observations of stick insects can also be submitted to the excellent Phasmid Study Group - http://phasmid-study-group.org/content/Report-UK-Phasmid-Sightings, we exchange data.
- The National Biodiversity Data Centre of Ireland has recently updated the Orthoptera data on their excellent online system, and is actively encouraging recording of this group.

  The dataset can be viewed at http://maps.biodiversityireland.ie/#/DataSet/204/SpeciesGroup.

  It is easy to view maps for each species, providing a great way to check the current data holdings and identify potential gaps in recording (Large Marsh Grasshopper *Stethophyma grossum* as an example on the right).

  To submit additional sightings use the online form:

  http://records.biodiversityireland.ie/submit_records.php?fk=GrasshoppersCricketsEarwigsStandard



- In Northern Ireland the Centre for Environmental Data and Recording (CEDaR) has set up a targeted "Grasshopper Survey", promoting the survey of sites for all known species; use of a sweepnet is encouraged: www2.habitas.org.uk/records/grasshoppers

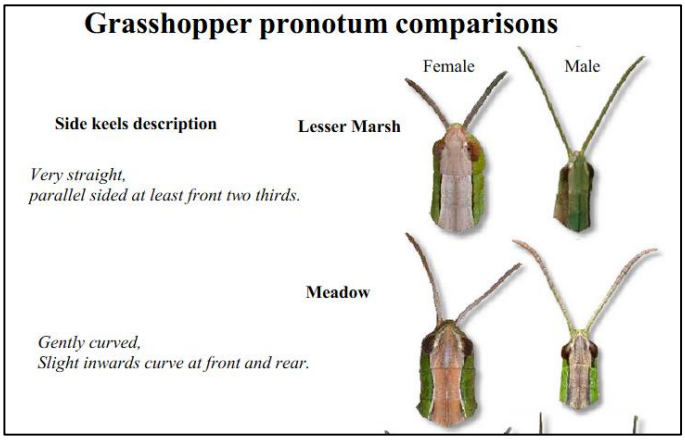
County Recorders

Below is a provisional list of county Orthoptera recorders – please email orthoptera@ceh.ac.uk with any omissions, corrections, and offers of taking on vacant counties! We hope to put the full list on the scheme website www.orthoptera.org.uk, with contact details and a space to add news and information for each county. Any county recorders interested in verifying online records for their county who are not doing so already, please register on www.brc.ac.uk/irecord and let Björn know. You will be given the required privileges and instructions – the verification system on iRecord is now very straightforward and easy to use.

Vice County		County Recorder
VC 3+4	Devon	Adrian Colston
VC 5+6	Somerset	Robert Cropper
VC 7+8	Wiltshire	Catherine Hosie
VC 9	Dorset	Ian Cross / Bryan Edwards?
VC 11+12	Hampshire	Lizzy Peat
VC 13+14	Sussex	Ralph Hobbs and John Paul
VC 15+16	Kent	Richard Moyse
VC 17	Surrey	David Baldock?
VC 18+19	Essex	Tim Gardiner
VC 20	Hertfordshire	Ian Carle
VC 22-24	Berks, Oxon, Bucks	Adrian Hickman
VC 25+26	Suffolk	Stuart Ling
VC 27+28	Norfolk	David Richmond
VC 29	Cambridgeshire	Robert Partridge
VC 30	Bedfordshire	Kevin Sharpe
VC 33+34	Gloucestershire	John Widgery
VC 35	Monmouthshire (Gwent)	Steve Williams
VC 37	Worcestershire	Gary Farmer
VC 39	Staffordshire	Andy Jukes
VC 40	Shropshire	David Williams
VC 41	Glamorgan	Greg Jones
VC 44	Carmarthenshire	Ian Morgan
VC 45	Pembrokeshire	John Steer
VC 53+54	Lincolnshire	Brian Redman
VC 55	Rutland / Leicestershire	Phil Rudkin
VC 56+57	Nottinghamshire + Derbyshire	Roy Frost
VC 58	Cheshire	Paul Hill?
VC 60	West Lancashire	Michael Foley
VC 61-65	Yorkshire	David Chesmore
VC 71	Isle of Man	Richard Selman
VC 91-95	Aberdeenshire and surroundings	Mick Marquiss

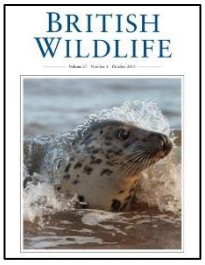
Gary Farmer (Worcestershire) has been gathering and collating county records over the past years and is aiming to write a county atlas this winter – see his website http://worcestershireorthoptera.weebly.com which includes draft maps, a new species identification guide and many superb photos. Please send in any remaining records asap.

We greatly look forward to the atlas!



See below (Great Green Bush-cricket conservation) for another example of the many "activities in the counties". Hopefully subsequent editions of this newsletter and the scheme website will report more of these in future.

British Wildlife



See the summer and autumn issues of the bi-monthly British Wildlife magazine www.britishwildlife.com for Peter Sutton's column giving highlights of Orthoptera observations and other current Recording Scheme news.

Twitter

The recording scheme is now on Twitter: https://twitter.com/grasshopperspot, and the feed is also included on the scheme home page www.orthoptera.org.uk.
Feel free to get in touch if you have a snippet of news to be sent out, or if you would like to help "tweeting".

Facebook

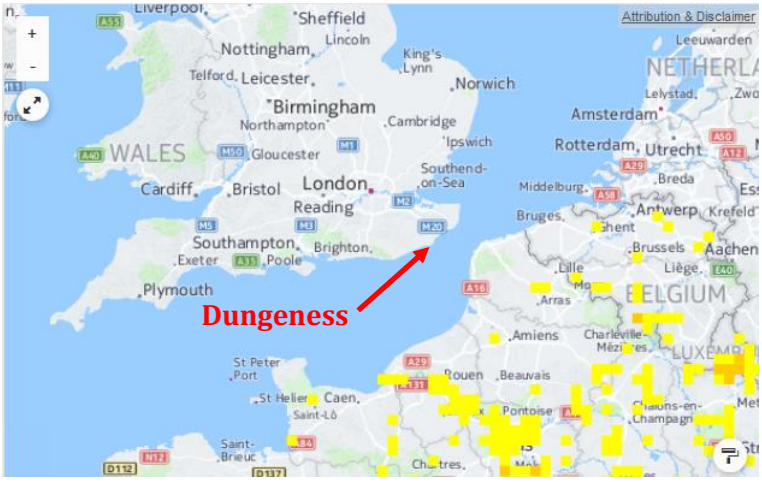
Megan Shersby has set up a new group on Facebook, "UK Orthoptera - Grasshoppers, Crickets & Allied Insects", a very welcome addition which clearly fills a gap – the group has quickly acquired members and has become a great place to share photos and sightings, get help with identifications, and find out about Orthoptera-related news.

4. Tree Cricket and Sickle-bearing Bush-cricket – here to stay?

Tree Cricket *Oecanthus pellucens*

Male Tree Cricket, Dungeness (David Browne)

On the evening of 20th August 2015, David Walker (warden of the Dungeness Bird Observatory) and Roger Morris (Hoverfly Recording Scheme) came across a flourishing colony of crickets producing an "unfamiliar, distinctly Mediterranean sound" as they took a shortcut across the shingle on the way home from the pub to the Bird Observatory (www.dungenessbirdobs.org.uk/lateframe2015.html). Further investigations by David and others confirmed the species to be the Tree Cricket *Oecanthus pellucens*, and revealed that the colony, which is concentrated in an area of only about 150x50 meters of scrub-vegetated shingle, may number a few hundred individuals. The crickets generally began to sing as evening approached, and have been heard from late afternoon onwards. A sound recording made by Gill Hollamby is available at www.dungenessbirdobs.org.uk/20150822%20202417.m4a. It is the first record for Britain of an apparently viable population of this species. The colony consisted of adult males and females as well as nymphs, indicating that the first individual(s) must have arrived at least in 2014 and laid eggs at the site.



Distribution of the Tree Cricket in NW Europe. French records to ca. 2003, Belgian records to ca. 2014, source www.gbif.org/species/1720967

Tree Crickets favour warm habitats and have been expanding their range northwards in Europe over recent decades, with climatic warming a likely factor. The 2003 French Orthoptera atlas (www.worldcat.org/oclc/491040567) shows records on and near the north-west coast of France, with current Belgian sightings also approaching the coast (http://data.inbo.be/ipt/resource.do?r=saltabel-occurrences). In 2004, the first naturalised colonies were found in the Netherlands (see details of new Dutch Orthoptera atlas below), and the species was discovered on Jersey in 2010 by the late Charles David (www.orthoptera.org.uk/node/63, British Wildlife (BW) 25: 52). In mainland Britain, Tree Crickets have been found previously as singletons in Cambridge in 1996, and at Sittingborne in Kent in 2005 (BW 17: 126). While both sexes fly well, single individuals found in urban areas away from the coast may suggest accidental introduction by humans. The Dungeness colony on the other hand is right on the coast at one of the points nearest to the continent and far from any urban centres, suggesting that the crickets may well have arrived "unaided" with a favourable wind. The colony is clearly reproducing successfully so the species may well be here to stay – and hopefully spread and bring its pleasant sounds to other parts of Britain. Keep your eyes and ears peeled (and loiter in secluded coastal spots on warm summer evenings, the imagination fired by a pint or two)!

The BBC produced an excellent 5-minute film about the Tree Crickets at Dungeness for the One Show. The clip can be viewed at www.bbc.co.uk/programmes/p0351qp2. Since the crickets were known to be most active after dusk, filming much of their behaviour outdoors was thought to be very difficult. Björn Beckmann therefore set up a small vivarium with Dungeness vegetation and caught a number of males and females and rather hopefully delivered this to the cameraman. A few days later the film crew came to Dungeness, spent nearly 12 hours filming on site and managed to capture some superb footage of a male singing

Male Tree Cricket stridulating, Dungeness (Mat Thompson, BBC)

outdoors! Finally, in the evening they showed us the videos obtained indoors, including a female feeding from the gland on the male's back during mating – fantastic!

This unusual behaviour occurs before, during and for about 15 minutes after mating; it is thought to help bring the female into the required position for mating, to provide additional nutrition (nuptial gift), and to prevent her from eating the spermatophore too soon after transfer, allowing the sperm to migrate out. Similar behaviour occurs in the Wood Cricket *Nemobius sylvestris* and in cockroaches (Ted Benton, New Naturalist Grasshoppers and Crickets; Ingrisch & Köhler, Die Heuschrecken Mitteleuropas).

Female Tree Cricket feeding from gland on male's back during mating (Mat Thompson, BBC)


George McGavin and David Walker being filmed (Björn Beckmann)

Many thanks to Mat Thompson (camera), Ben Taggart (sound), Ruth Davies (director), Sophia Luzac and Jessica Pitcher (researchers), and last but not least George McGavin (presenter), as well as all others involved, for producing such a great clip to document this new arrival.

Sickle-bearing Bush-cricket *Phaneroptera falcata*

On 26th August 2015, whilst monitoring the Tree Cricket colony at Dungeness at dusk, David Walker made a second significant discovery when he found a female Sickle-bearing bush-cricket, and over subsequent days went on to find a male and four more females at the site. The Sickle-bearing bush-cricket has clearly been attempting to gain a toe-hold in southern England over the last decade, with a small colony persisting for at least three years between 2006 and 2008 at Hastings Country Park in East Sussex (BW 20: 125), and records of singletons from the New Forest in 2006 (BW 18: 53), from Dungeness itself in 2009 (BW 21: 202), the Humber Estuary in 2010 (BW 22: 49), and Studland in 2012 (BW 24: 127). In view of the previous find at Dungeness, the species may even have been established there for over five years.


Male Sickle-bearing Bush-cricket at Dungeness (David Browne)

The Dungeness population may well be larger than is currently apparent. If not, however, it remains to be seen whether such a small colony can survive and hopefully spread, or goes extinct again as the one in Sussex seems to have done. A study of another bush-cricket species suggested that a founder population of at least 32 individuals is required "to establish a viable population with a

Distribution of the Sickle-bearing Bush-cricket in NW Europe. French records to ca. 2003, Belgian records to ca. 2014, source www.gbif.org/species/1686243.

high degree of certainty" (Berggren 2001, Colonization success in Roesel's bush-cricket *Metrioptera roeselii*: the effects of propagule size, Ecology, 82(1), 274–280).

Like the Tree Cricket, the Sickle-bearing bush-cricket is a warmth-loving species that has been extending its range north-westwards on the continent over recent decades and occurs on or near the French and Belgian coasts. Like the Tree Cricket, too, both sexes fly well and the species may well have reached England by natural dispersal.

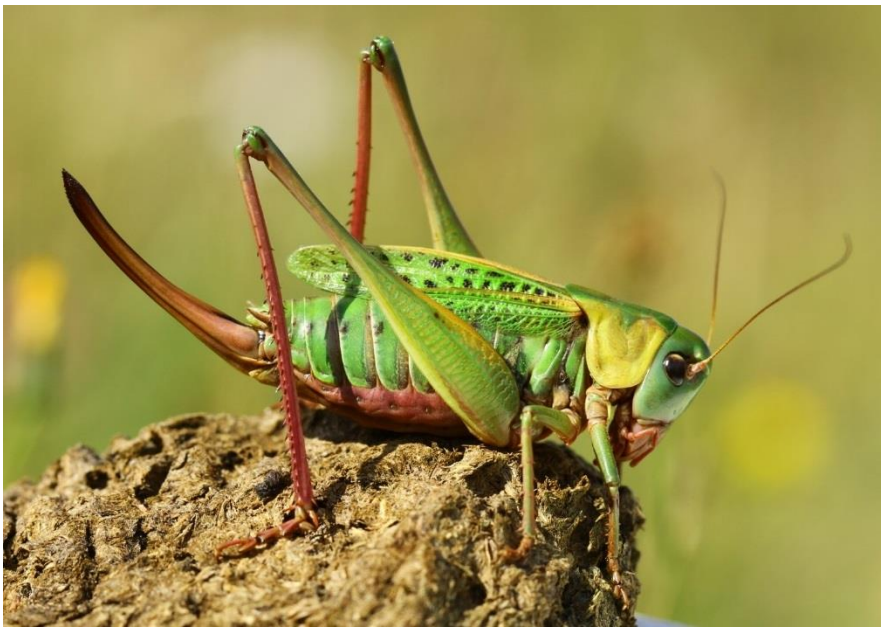
5. Rare species news

Wartbiter *Decticus verrucivorus*

The Wartbiter has been the subject of an initiative to assess its status at all of its UK sites, with key work undertaken by Sarah Henshall (Lead Ecologist at Buglife) and Oliver Cheesman (a professional entomologist and long-standing expert on this species). Findings were cautiously positive, with most populations at least stable.

Importantly, a team comprising Natural England, Buglife, and South East Water has reintroduced of Wartbiters at the Deep Dean site in East Sussex, where the species has not been seen for over 40 years. It is hoped a colony will become re-established (https://buglife.org.uk/news-events/news/we-dont-like-crickets-we-love-them). It has taken 20 years to prepare the site for colonisation, and the initiative is regarded as instrumental in securing the future survival of this endangered species in England.

David Browne has been surveying the Wartbiter at Mount Caburn near Lewes in East Sussex, where he revealed that the colony, which was introduced to the site using London Zoo Species Recovery Programme stock that originated from Castle Hill National Nature Reserve, is doing well with perhaps over 100 adults per season. He also discovered male and female specimens of a very interesting partially purple and yellow variety (see photo). This may be a genetic remnant of the spectacular purple and yellow colour form that was once found at Castle Hill and has not been seen since the 1990s. It was David who found the last specimen of this form to be photographed, which appeared in the British Wildlife column (BW 20: 432) and several other publications.



Female partially purple and yellow variety of the Wartbiter (David Browne)

Lesne's Earwig *Forficula lesnei* in Worcestershire

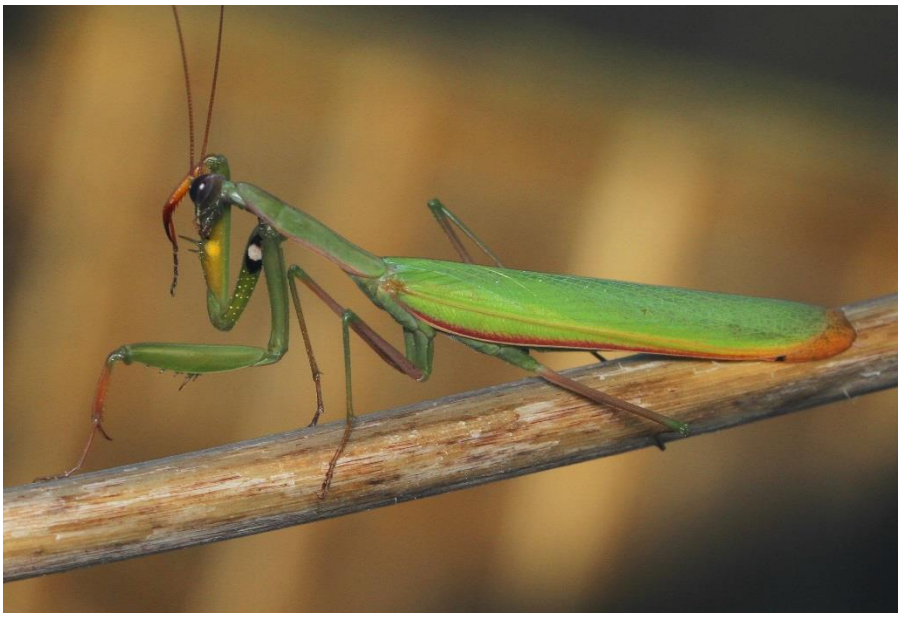
Lesne's earwig is a rare species confined to southern England. Distinctive features include a lack of hindwings, a light brown, barrel-shaped abdomen, and the male pincers being flattened along half their length (see the free guide at www.orthoptera.org.uk/node/1035).

Female and male Lesne's Earwig, Worcestershire (Gary Farmer)

Gary Farmer (county recorder for Worcestershire) received several new records from the north of the county, "where the species was found in broom pods in heathy areas". Gary searched along the Severn Valley to see if there were any populations between these new northern records and the traditional stronghold in the south along the Avon. Eventually he "found them at Kempsey in Bindweed on an Elm hedge and also beat a male from Japanese Knotweed flowers". In Worcestershire, the species mostly occurs in old hedgerows with abundant Old Man's Beard (Traveller's Joy, *Clematis vitalba*) and the best way to find it is to "beat or shake the Clematis into an upturned umbrella or a purpose-made beating tray" in September and October (http://worcestershireorthoptera.weebly.com/allied-insects.html).

Praying Mantis *Mantis religiosa*

On 1st October 2015 Gary Palmer found a male Praying Mantis free-flying in a field in Sway in Hampshire. Judith Marshall confirmed the species as the European *Mantis religiosa*, based on the distinctive eye-spot on the inside front legs. Gary's account makes fascinating reading: "I was puzzled by the strange flight of what appeared to be a large insect some forty metres away, flying at head height in large circles above the meadow. Realizing straight away that it was not something that I recognized I ran towards it. As I drew nearer it suddenly folded its wings and dropped into the long grass before me. Astonished at what I had found, I managed to carefully catch it in my hands..."



Male Praying Mantis, Hampshire (Robin Harley)

This is only the second record of a free-flying, potentially migrant mantis in England, and while an escape from captive stock is perhaps still the most likely origin, the males of this species in particular clearly fly very well and it is not impossible that individuals may be able to reach areas like the Hampshire coast from the continent under favourable conditions. The females are much heavier and do not fly nearly as well, so a successful colonisation would presumably still depend on accidental introduction. The species occurs as far north as Normandy in France, and there has been a single record from Jersey in 2003. Interesting times!

6. Conservation of the Great Green Bush-cricket in Cambridgeshire. *Rob Partridge, county recorder. Reproduced with kind permission of the Amateur Entomologists' Society.*

Maintaining the habitat of the Great Green Bush-cricket *Tettigonia viridissima* at one of its Cambridgeshire sites.

by Rob Partridge (8956).

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In an earlier article in the *Bulletin*, June 2009, I described the tenuous hold that this impressive bush-cricket has in the old county of Cambridgeshire, VC 29. I know of only two colonies, located a few miles apart as the crow flies across the flat, arable fenland fields that surround them. Both sites seem to be associated loosely with riparian habitats and the banks that support the drainage of the fens but are in other ways unremarkable; there are scores of similar-looking places that do not hold the species. Historically, records suggest that it was once more widespread in the county but visits to places where they were found in the early twentieth century have not turned up any other colonies. It is likely that the two colonies left are the last survivors of many that would have existed before the fens were drained in the seventeenth century, and as such they have an historical as well as an ecological importance.

The Great Green Bush-cricket has a distinctly southerly distribution in the United Kingdom, as befits a warmth-loving insect. The maps in the recent New Naturalist publication *Grasshoppers and Crickets*, by Ted Benton, show that

Adult female Great Green Bush-cricket *Tettigonia viridissima*. Photograph by Ted Benton.

Norfolk has colonies slightly more to the north than the Cambridgeshire ones; these maps also suggest, however, that there has been some decline since 1998 along the northern edge of the species' national range. The two Cambridgeshire colonies are clearly now amongst the most northerly in Britain. One might have expected the insect to be moving north as some other orthopterans have in response to a warming climate, and it will interesting to see what the forthcoming atlas of the Orthoptera shows, hopefully in 2015. However, the species' habitat requirements might also be a factor in its disappearance from some formerly suitable areas.

The site near Sutton Gault, a few miles west of Ely, lies adjacent to the well-known Ouse Washes reserve. When the washes flood in winter, they provide one of the country's most important refuges for wintering wildfowl; in the summer months they also have plenty of entomological interest, not all of which has yet been fully documented. The most westerly of the drains involved is the Counterwash drain. Between its outermost bank and the drain itself is a narrow strip of marshland which does not appear to have a local name; for the sake of convenience I have christened it the Gullet marsh, after a well-known kink in the bank of the main washes that juts out into it. The marsh itself is dominated by various sedges *Carex* spp. and rushes *Juncus* spp., with one small bed of common reed *Phragmites australis*. Occasionally the bush-cricket is found out in the sedges but it is the raised banks themselves that it most favours. For many years, these banks received only an occasional mowing, no more than once a year. As a result, they developed strong growths of tall perennial plants such as greater willowherb *Epilobium hirsutum*, hemp agrimony *Eupatorium cannabinum*, nettle *Urtica dioica* and various thistles *Cirsium* spp. The height of this sward, for want of a better word, is significant for the Great Green Bush-cricket, for it is from these taller plants that the males sing in order to attract females. Traditionally, the bush-cricket is associated with brambles *Rubus* sp. and low scrub, neither of which is present in the area occupied here. The relatively low level of management has encouraged a good diversity of insects, but I will confine myself to the Orthoptera: at least 9 species are present, including a large colony of the Short-winged Conehead *Conocephalus dorsalis*. In a Cambridgeshire context, this is one of the best sites for the true Orthoptera.

The Environment Agency (EA) has responsibility for maintaining this area and many others like it. When managed with a light touch, as the Gullet marsh had been for many years, wildlife quickly moves in and flourishes. So it was with some concern that I viewed what had happened here in the early autumn of 2011. The marsh itself had been mowed flat, thanks to a dry summer, fencing had appeared and horses were grazing down the last of the vegetation on the banks. Many emails were sent and phone calls made over the next few days. It transpired that although records had been deposited by me with the local biological records

Gullet marsh, mown state, late autumn 2011.

centre, confusion had arisen as to exactly which parts of the site were important – a lesson to us all to be very thorough in these matters! Further discussions took place, resulting in an on-site meeting early in 2012 with a conservation officer from the EA, their grazing manager and a representative from the County Wildlife Trust.

To their credit, the EA agreed to suspend all management of the site for a period of two years, giving me the opportunity to monitor more thoroughly the way in which the bush-cricket uses it. Counts of singing males have been made from July to September for the past three summers, giving sound data on which to base future management plans. Much has been learned; for example, counting before 16.00 is usually pointless, and if you want to hear virtually every male singing, try counting as it's getting dark, especially on a warm night. Numbers vary considerably from year to year, and this is probably typical of the Orthoptera as a group; the hundred plus males of the 3rd of September 2005 has never been repeated, and 'high' counts of 20 to 30 are more typical. This year, 2014, has so far seen rather low counts, with 10 the best on the 23rd of August. However, the other site a few miles away has exceptional numbers, and it is possible that the low numbers at the Gullet marsh this year are a result of the increased management of three years ago;

Gullet marsh, showing recovery, September 2014.

according to Benton, the life cycle of the Great Green Bush-cricket is at least two years and it can be up to eight years before the egg pods finally hatch. In this way, the species spreads the risk from catastrophic weather and habitat events.

The EA has more than honoured their side of the agreement. They have consulted on the best places to deposit spoil from dredging operations, and they have put in additional fencing to protect areas that the bush-cricket might colonise on the other side of the Counterwash drain. This year, the top of one section of the bank has been lightly mown; otherwise the natural vegetation has been allowed to regenerate, to the benefit of all wildlife in the area. Ragwort and hemp agrimony attract butterflies in good numbers, and birds have found the marsh much to their liking. Water Rails are present throughout the year, two pairs of Marsh Harrier were displaying there in April and a Grasshopper Warbler was singing in May. During the winter, the Gullet marsh is home to what might well be the country's largest roost of the scarce Water Pipit, with more than 30 birds regularly counted. Also, for the first time, this season I discovered Harvest Mice and Water Voles on the edge of the marsh. To me, the message is clear: if we want to conserve wildlife, start with the insects.

The banks and drains continue to play an important role in protecting the fens and they do need to be managed with that in mind. At some point, I hope to meet again with EA staff on site so that the future of this small but valuable place can be secured – it should be possible to devise plans which allow the Great Green Bush-cricket to thrive in one of its last refuges in VC 29 without endangering the human residents of the area with another 1947 deluge! And it would even better if we could take the lessons learned here and apply them to some of the other small, forgotten places that are so important to the many creatures that we can no longer take for granted.

I would like to thank Dr Geoff Brighty and Julia Massey of the Environment Agency for their interest and co-operation. Martin Baker, Conservation Manager of the Wildlife Trust for Bedfordshire, Cambridgeshire & Northamptonshire, supported me from the very beginning, and he and his team have provided excellent distribution maps of the bush-cricket every year of the project. Dr Peter Sutton gave helpful comments about the habitat requirements of the bush-cricket. Finally, David Hopkins showed me the Water Pipit roost and explained its importance. I am grateful to them all.

References

Benton, T., 2012. *Grasshoppers and Crickets*. Collins, New Naturalist.

Partridge, R., 2009. The Great Green Bush-cricket *Tettigonia viridissima* in 'Old' Cambridgeshire. *Bull. Amat. Ent. Soc.* **68** (484) 101-107.

7. Obituary: Dr Jennifer Newton MBE 1937-2013

Jennifer Newton (photo from the Guardian website)

It was with great sadness that we learned of the death of Jennifer Newton, who was an outstanding naturalist and conservationist and contributed greatly to the Grasshopper Recording Scheme, particularly in north-western England.

According to the obituary in the North Lancashire Wildlife Group newsletter, "Jennifer's interest and involvement in the natural world began in childhood when she spent a lot of time with her father, the botanist, Professor A. R. Clapham, exploring plants and animals in the countryside around Sheffield. She often recalled, with a chuckle, how her father had persuaded her to become the grasshopper recorder in one of the Sheffield districts at the age of eleven. She had told him she knew nothing about them and he had replied that she soon would!" Jennifer went on to study botany and zoology at Cambridge University, and carry out PhD research in plant physiology at Oxford University. After moving to Lancashire with her husband in 1968, she became very actively involved with the Lancashire Wildlife Trust and the North Lancashire Naturalists (now Wildlife Group) for the next 40 years.

Jennifer was responsible for many new and important Orthoptera records including of the spread of the Short-winged Conehead *Conocephalus dorsalis* along the north-west coast of England. Jennifer produced an atlas of 'Orthoptera of North Lancashire' at 2km resolution (published by Lancashire and Cheshire Entomological Society, Annual report and Proceedings for 1997-99, Vols 121-123, pp. 12-23). Similarly, an atlas of 'Grasshoppers and Crickets in Cumbria' at 2km resolution, published by Cumbria Biological Records Centre in 1993 (correspondence to Keeper of Natural Sciences, Tullie House Museum, Castle Street, Carlisle, CA3 8TP). Thanks in part to her, Cumbria now has an excellent online Orthoptera atlas (www.lakelandwildlife.co.uk/grasshoppers.htm).

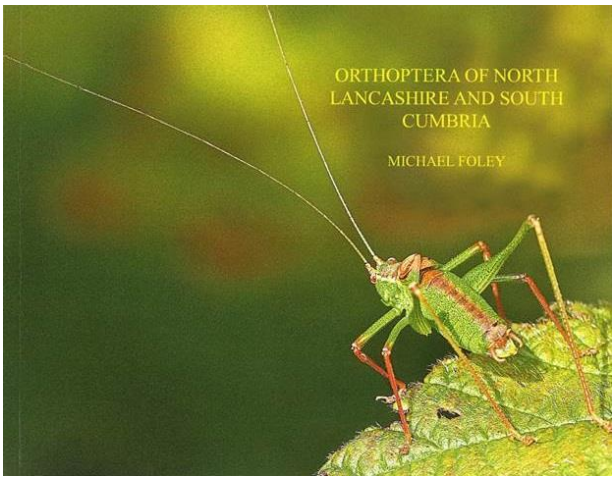
In addition to her work as a recorder, covering many taxa apart from grasshoppers and crickets, Jennifer was also noted for her determined campaigns as a conservationist, leading, for example, to the acquisition of Burton Wood as a nature reserve for the Lancashire Wildlife Trust. In 2007, she was awarded an MBE for her services to nature conservation in North Lancashire. Her reliable and comprehensive contributions to the Orthoptera Recording Scheme and her kind, helpful and knowledgable responses to enquiries will be sorely missed.

An obituary was published by Jennifer's daughter in the Guardian (www.theguardian.com/theguardian/2013/apr/11/jennifer-newton), and by the North Lancashire Wildlife Group in their 2014 newsletter (www.nlwg.co.uk – although the website is currently down).

8. Publications

Below is a list of recent publications relevant to the Recording Scheme that have come to our attention. Please let us know about any others for future newsletters!

Book: Orthoptera of North Lancashire and South Cumbria, Foley, M. (2015).



Michael Foley (who took over from Jennifer Newton as county Orthoptera recorder) has produced a very nice small account of the grasshoppers and crickets of north Lancashire and south Cumbria, containing colour photos of the 12 species found there as well as details of their distributions, etc. Copies (printed to order and priced at the cost of production) are £12 (soft back) or £22 (hard back) plus £2 postage.

Please order via the Orthoptera Recording Scheme (orthoptera@ceh.ac.uk).

New Red Data Book:
Sutton, P.G. (2015), **A review of the scarce and threatened Orthoptera and allied species of Great Britain**, Orthoptera, Dictyoptera, Dermaptera, Phasmida. Species Status No. 21, Natural England Commissioned Reports, pp. 1-51. To be published soon at http://publications.naturalengland.org.uk (search for Species Status Orthoptera). This publication provides a complete re-evaluation of the threat status of all British species in accordance with the latest IUCN criteria. The evaluation is based on the records of the Grasshopper Recording Scheme and expert opinion and provides an excellent example of the importance of biological records.

Research article:
Beckmann, B.C., Purse, B.V., Roy, D.B., Roy, H.E., Sutton, P.G., Thomas, C.D. (2015), **Two species with an unusual combination of traits dominate responses of British grasshoppers and crickets to environmental change**, PLoS ONE 10 (6):e0130488.

Using data of the Grasshopper Recording Scheme, we calculated range changes of grasshoppers and crickets in Britain between the 1980s and the 2000s. Large increases in distribution were found for Long-winged Conehead (*Conocephalus discolor*), Roesel's Bush-cricket (*Metrioptera roeselii*), Lesser Marsh Grasshopper (*Chorthippus albomarginatus*) and Slender Groundhopper (*Tetrix subulata*), while large decreases were found for Large Marsh Grasshopper (*Stethophyma grossum*) and Mottled Grasshopper (*Myrmeleotettix maculatus*). The below figure is taken from the paper and illustrates the rapid range expansion of Long-winged Conehead and Roesel's Bush-cricket over recent decades.

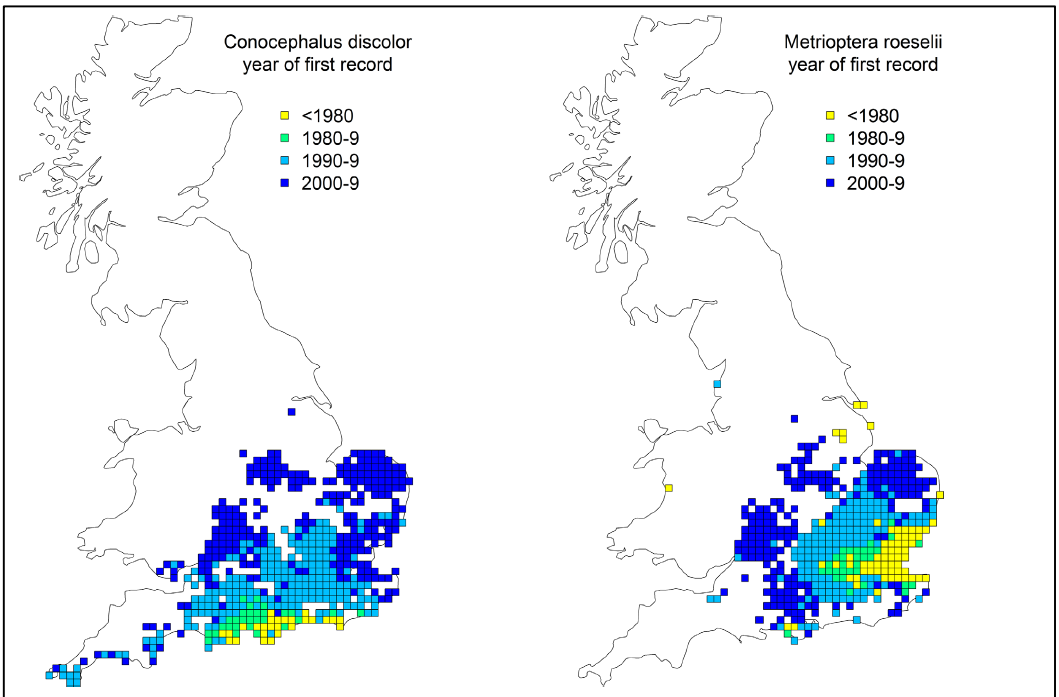


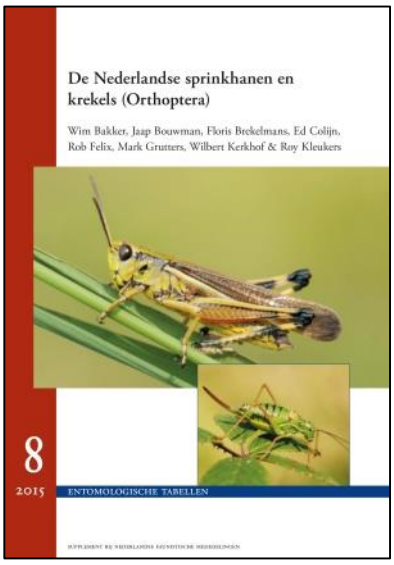
Fig 5. Range expansions of *Conocephalus discolor* and *Metrioptera roeselii* in Britain between 1980 and 2009. The figure shows years of first records of the species in each hectad. N.B.: The maps are based on the dataset retrieved from the Orthoptera Recording Scheme database for the present study (in 2013).

As a second step, we assessed whether the biological traits of the species undergoing range changes might explain their success or failure. We found that Long-winged Conehead and Roesel's Bush-cricket combine three traits that are likely to be giving them an advantage under current conditions: firstly, they live in a wide range of habitats, meaning that they can easily find suitable new areas wherever they arrive; secondly, they are southerly (i.e. warmth-loving) species and have therefore benefited from recent climate warming; and thirdly, they lay their eggs in vegetation, not in the ground or at the soil surface, making them independent of the short or open swards that many other species need. This last finding is particularly interesting, because the Countryside Survey (http://countrysidesurvey.org.uk) shows that vegetation has been getting taller and shadier over this time period.

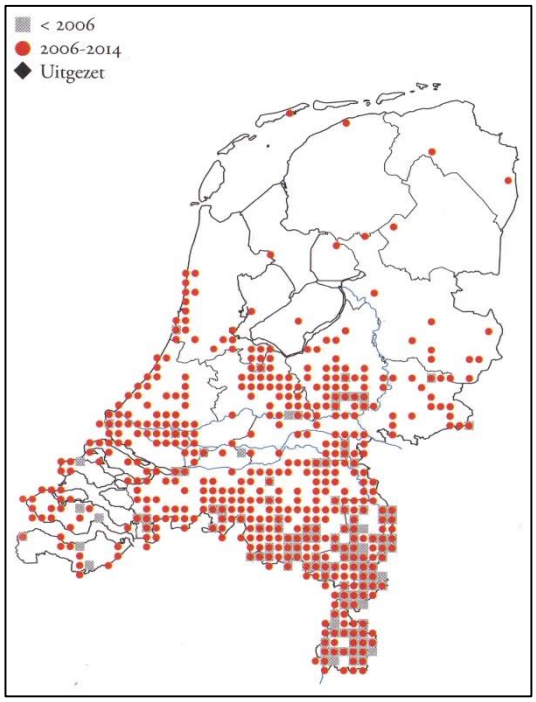
Previous studies have shown that Long-winged Conehead and Roesel's Bush-cricket benefit from their "wing-length dimorphism" (short- and long-winged forms), meaning they "invest" in dispersal only temporarily and under favourable conditions. Our results expand on this picture, suggesting that only the combination with a suitable set of other traits has enabled these two species to benefit so dramatically from recent environmental changes. The study also shows the value of long-term distributional datasets such as the Grasshopper Recording Scheme for assessing and understanding changes in the natural world.

The full paper is available on open access at
www.plosone.org/article/fetchObject.action?uri=info:doi/10.1371/journal.pone.0130488&representation=PDF

New Dutch Grasshopper Atlas:
Bakker, W.H., J.H. Bouwman, F. Brekelmans, E.C. Colijn, R. Felix, M.A.J. Grutters, W. Kerkhof & R.M.J.C. Kleukers 2015. **De Nederlandse sprinkhanen en krekels** (Orthoptera). Entomologische Tabellen 8: 1-255.

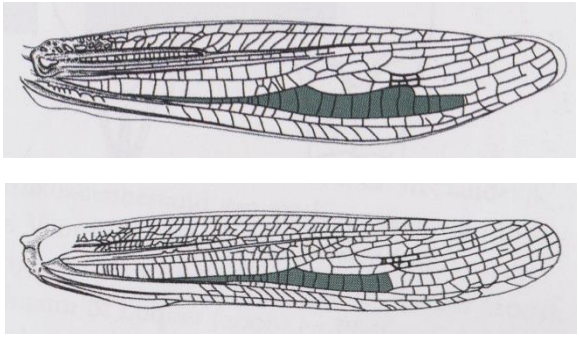


In this publication the results of the second Dutch atlas project (2006-2014) are compared to the first (1990-1995). The second project collected a fantastic total of over 320,000 records (!), and achieved very comprehensive coverage of the country. The results show that the fauna has changed considerably, with some species declining (including the Wartbiter *Decticus verrucivorus*, which declined from 5 to 2 5x5km squares) and others expanding, in some cases very significantly (for example the Southern Oak bush-cricket *Meconema meridionale*, which increased from 8 to 616 squares) as well as several species arriving new to the Netherlands (including the Tree Cricket *Oecanthus pellucens*).



There is a 2-page account for each of 62 species, with excellent photos of males and females, and (Dutch) text describing identifying characters, differences to similar species, habitat, song, life cycle, distribution, and how/where to look. There are distribution maps at 5km and 1km resolutions (the *Phaneroptera falcata* 5km map as an example on the left, roughly original size).

In addition, the atlas contains a new, highly detailed 30-page key for identifying the Dutch species, illustrated with many drawings and macro-photographs of key features to look out for. One example is shown below – the key points out that the radial field in the forewing of the Lesser Marsh Grasshopper (*Chorthippus albomarginatus*) widens abruptly (top male, bottom female); this should be a very useful character to confirm an identification of this species (the key shows that the field widens gradually in other, similar species). The text of the key is in Dutch, but with the illustrations it is generally not difficult to understand the meaning.



The atlas costs 17.50 Euros (plus postage?) and can be ordered by filling in the form at www.eis-nederland.nl/publicaties/entomologische-tabellen. Some further details at http://ortheur.org/news/new-atlas-dutch-orthoptera.

50 years of the Biological Records Centre: A special issue of the Biological Journal of the Linnean Society (Volume 115, Issue 3, July 2015). A series of papers reflecting on the collaborative achievements of biological recording across the UK. Table of contents: http://onlinelibrary.wiley.com/doi/10.1111/bij.2015.115.issue-3/issuetoc. Several papers are available free of charge; for individual copies of others email orthoptera@ceh.ac.uk.

Pocock, M.J.O et al. (2015): **Developing and enhancing biodiversity monitoring programmes: a collaborative assessment of priorities**, Journal of Applied Ecology, 52 (3): 686–695. This study reports the consensus of 52 practitioners on what is most important to the success of a biodiversity monitoring programme. Access to the article is free: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12423/pdf.

An amusing study showing that some crickets are bolder than others:
Niemelä, P.T., E.Z. Lattenkamp & N.J. Dingemanse (2015): **Personality-related survival and sampling bias in wild cricket nymphs**, Behavioral Ecology (2015) 26 (3): 936-946. http://beheco.oxfordjournals.org/content/26/3/936.abstract; http://www.mpg.de/9192793/personality-related-survival-crickets

9. Meetings

National Biodiversity Network (NBN) conference, 19-20 November 2015, York

The theme of this year's conference is "From Global to Local" and there is a large number of interesting talks lined up. For the full programme and further details see http://nbn.org.uk/Events/Events-and-Training/Seminars-and-conferences/2015-NBN-Conference.aspx

Biannual meeting of the German Society for Orthopterology (DGfO) and First European Congress on Orthoptera Conservation, 18-20 March 2016, Trier (Germany)

From Axel Hochkirch's post on the UK Orthoptera Facebook page: You are all welcome to participate (of course also from outside Europe)! It will be a great opportunity to present your research, exchange ideas, get new contacts, instigate new cooperation and of course visit the (probably only) grasshopper fountain in the world: www.vanderkrogt.net/statues/object.php?record=derp029&webpage=st. The registration fee is 30€ for students and DGfO members, 40€ for all other participants. Further details at www.uni-trier.de/index.php?id=57711&L=2.

National Federation for Biological Recording (NFBR) conference, 12-14 May 2016, Lancaster University

The focus will be a celebration of national recording schemes and societies. There will be a field trip to the Forest of Bowland AONB. Details will appear on www.nfbr.org.uk.

"Celebrating Biological Recording", 22-24 July 2016, Preston Montford

The National Federation for Biological Recording (NFBR) is collaborating with Manchester Metropolitan University (MMU) and the Field Studies Council (FSC) to organise this event celebrating the 30th anniversary of NFBR and the 20th anniversary of the FSC/MMU Biological Recording courses. There will be field trips to local sites throughout the weekend and an after dinner speaker on Saturday night.

Orthopterists' Meeting, 2 November 2016, 1:30-5:30pm, Natural History Museum London

Everyone is very welcome to attend the annual "Orthopterists' meetings" (Royal Entomological Society Orthoptera Special Interest Group meetings), whether to present research or just to listen and meet others. Please email the convenor Björn Beckmann at orthoptera@ceh.ac.uk if you would like to give a talk, present a poster, suggest a speaker, or register to attend! Further details will appear on www.orthoptera.org.uk and www.royensoc.co.uk.

10. Next Issue

Please send us your contributions for the next issue of this newsletter. Any news items, dates of identification courses, etc.!

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