

Orthoptera and allied Insects Recording Scheme of Britain and Ireland

grasshoppers crickets stick-insects earwigs cockroaches mantids

www.orthoptera.org.uk



Newsletter 29, Spring 2013

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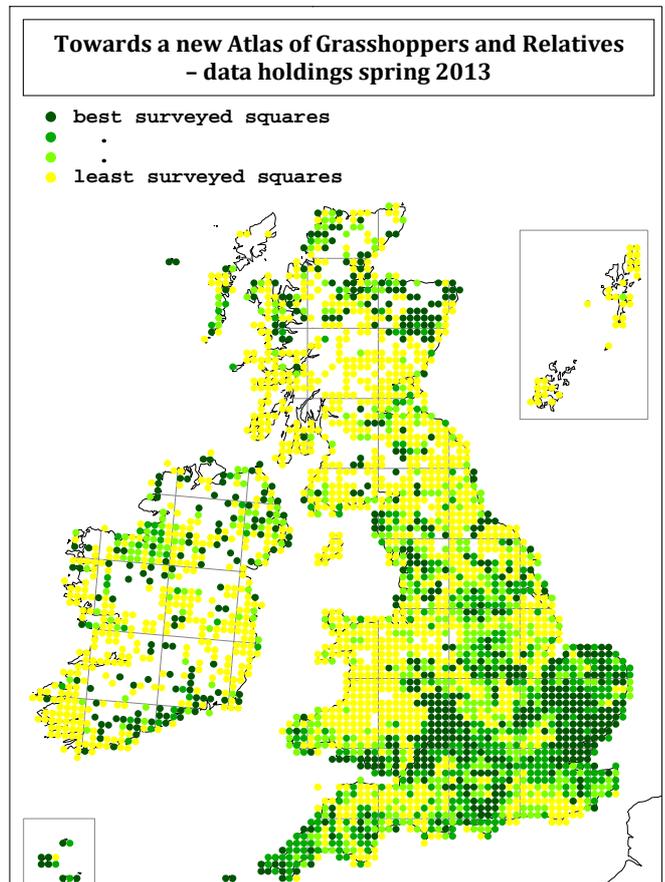
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New atlas: working draft maps and call for records

As many of you will be aware, we are working towards a new atlas of Orthoptera and allied insects in Britain and Ireland. This will be the third, after Marshall & Haes' comprehensive "Grasshoppers and allied Insects of Great Britain and Ireland" published in 1988, and Haes & Harding's "Atlas of Grasshoppers, Crickets and Allied Insects in Britain and Ireland", published in 1997.

We have produced a set of working draft maps, which are appended to this newsletter. We hope the maps illustrate some of the dramatic changes affecting Orthoptera and will inspire you to fill gaps in recording. Despite earlier plans to finish in 2012, we will now collect records for two further seasons, 2013 and 2014, although we are beginning to write the atlas this year, with publication envisaged in 2015. There are many ways of submitting your records – details at the end of this section.

The summary map on the right shows which areas are best and least recorded according to our current data. The two insets show the Channel Isles, and Orkney & Shetland. Areas of the map with a shortage of records indicate places where we have not yet received or processed existing data, or where few Orthoptera observations were made in recent years. Please help to fill gaps and report errors.



We would like to take this opportunity to thank everyone who has already contributed to the recording of grasshoppers and crickets – more than 2,500 individual recorders, many Local Biological Record Centres, museums, and the National Biodiversity Data Centre of Ireland.

How to submit your observations:

- Log your observations online at www.orthoptera.org.uk/recording or at http://records.biodiversityireland.ie/standard_form.php?fk=GrasshoppersCricketsEarwigsStandard
- Use your mobile phone to record your observations – see page 4 of this newsletter for details, and the attached document “Recording Grasshoppers with a smartphone using Epicollect”
- 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	National Biodiversity Data Centre
Centre for Ecology & Hydrology	Beechfield House
Wallingford	Carriganore WIT West Campus
OX10 8BB	County Waterford
UK	Ireland
- If you are sending your records to your county recorder, there is no need to send them in any other way. Similarly, if you send them centrally to the scheme in any of the above ways, they will be shared with county recorders and Local Record Centres.
- 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.



Invitation to the annual Orthopterists' meeting, 6th November 2013, 1:30-8:00pm, Natural History Museum London

The annual Orthopterists meetings are convened as a special interest group of the Royal Entomological Society and everyone is very welcome to attend, whether to present research or just to listen and meet others. Talks, posters and other contributions can be presented on grasshoppers, crickets and related groups (cockroaches, earwigs, stick insects, mantids).

This year we will be meeting on Wednesday 6th November 2013 from 1:30-8:00pm in the Natural History Museum, London.

We are aiming to put together a programme with a mixture of presentation lengths. We hope that this will encourage many people to take part. Both initial observations and ideas, as well as completed research are welcome.

Please forward the invitation to anyone who may be interested, e.g. students working on Orthoptera. There will be space to display posters and other exhibits, and a projector will be provided.



Programme

A draft programme will be circulated in the autumn. To date we are expecting:

- a talk by Ted Benton from the University of Essex on “Alfred Russel Wallace and sexual selection”, marking 100 years since Wallace’s death.
- a talk on the evolution of Orthoptera by David Nicholson. David recently completed his PhD at the Natural History Museum titled “Fossil Perspectives on the Evolution of Insect Diversity”.
- (possibly, to be confirmed) a talk on Southern European Orthoptera by Roy Kleukers and / or his colleagues. Roy is an author of the Dutch grasshopper atlas.

Directions

The meeting will be held in the Dorothea Bate Room at the London Natural History Museum. Use the Cromwell Road entrance into the Central Hall; walk past *Diplodocus* and turn right (at the tail-end) into the Fossil Marine Reptiles Gallery, and go all the way to the door at the far end. The outer door is unlocked but the inner door is locked, please press the buzzer for access. 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!

Cost

- Either a full price of £14.00 to include a cold buffet with wine at about 6pm, 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.

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

Payment

- Either send a cheque made payable to the Royal Entomological Society to: Ms Kirsty Whiteford, Senior Administrator, 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.
- Overseas visitors can pay on the day.

We hope to see you there!



Identification courses in 2013



Field Grasshopper (*Chorthippus brunneus*).
Photo by Katie Beckmann.

A number of identification courses are on offer this year teaching identification of Orthoptera by sight and sound. Details are listed below.

For current information please keep an eye on www.orthoptera.org.uk/Recording/index.php?q=node/760.

If you know of any additional courses not listed there, please add the details to the list yourself or email them to orthoptera@ceh.ac.uk.

If no suitable course is listed below and you would like an identification course to be organised in your area, please contact us and we will try to arrange one. Alternatively, if you are willing to pay and have a group of at least 5 interested people you may be able to book a course with

www.projectfred.co.uk/procourse/grasshopperid.html

Sunday 28th July 2013, 10:30-3:30 – Warwickshire Orthoptera identification workshop

With Gary Farmer. This workshop will be held at Brandon Marsh Nature Centre, Brandon Lane, Coventry, Warwickshire, CV3 3GW. Map reference SP 386 761. For details please see

<http://worcestershireorthoptera.weebly.com/news.html> and

www.warwickshirewildlifetrust.org.uk/events/2013/07/28/orthoptera-workshop

July or August 2013 – Grasshopper and Cricket course at Greenham Common, Berkshire

With Adrian Hickman. To be confirmed, please check www.bbowt.org.uk/whats-on

Friday 2nd August 2013, 10:00-4:00 - Introduction to grasshoppers, crickets and earwigs Workshop at the National Biodiversity Data Centre, Waterford, Ireland

With Dr Eugenie Regan. Level: Beginner.

To register please visit www.biodiversityireland.ie/home-page/event-registration/?ee=26

Saturday 3rd August 2013, 11:00-5:30 – Grasshoppers and related Insects identification course at the Oxford University Museum of Natural History

With Björn Beckmann or Peter Sutton. There will be an indoor course and a walk into the nearby meadows.

Further details to be confirmed, please check www.orthoptera.org.uk/Recording/index.php?q=node/760. If you are interested in attending, please email orthoptera@ceh.ac.uk.

Sunday 4th August 2013, 11:00-5:30 – Grasshoppers and related Insects identification course at the Natural History Museum, London

With Björn Beckmann or Peter Sutton. The course will be held in the Angela Marmont Centre in the new Darwin Centre of the Natural History Museum. Further details to be confirmed, please check

www.orthoptera.org.uk/Recording/index.php?q=node/760. If you are interested in attending, please email orthoptera@ceh.ac.uk.

Saturday 10th August 2013 – Grasshoppers and related Insects identification course at the Field Studies Council in Preston Montford

With Björn Beckmann or Peter Sutton. The workshop will be held at Preston Montford Field Centre, Montford Bridge, Shrewsbury, Shropshire, SY4 1DX. Further details to be confirmed, please check

www.orthoptera.org.uk/Recording/index.php?q=node/760. If you are interested in attending, please email orthoptera@ceh.ac.uk.

Wednesday 21st and Saturday 24th August 2013 – Hampshire and Isle of Wight Grasshoppers and Bush-crickets identification course

With Adrian Hickman. There will be an indoor evening session on 21st August and a field trip on 24th August.

For details and to book: www.hiwwt.org.uk/courses.php/148/grasshoppers-and-bush-crickets-21-and-24-aug



Recording Orthoptera with your smartphone

If you have a smartphone, this can be a very handy tool for making a record of your observations.

The phone's GPS position provides an automatic record of the location, you can add a photo, and stored observations can be uploaded to an online database once you have network coverage.

A dedicated "app" for recording Orthoptera is under development in a collaborative project between the Biological Records Centre and the Universities of York, Southampton and Bristol.

Meanwhile, you can use the "EpiCollect" app. We have created a project called "Orthoptera".

Please see the detailed instructions appended to this newsletter.

EpiCollect is available for Android and iPhone. It is a free open source project developed at Imperial College London.



Grasshopper and cricket sounds

We have recently added a full set of Orthoptera songs to the species accounts pages of the Orthoptera website at www.orthoptera.org.uk/species_orthoptera.aspx. You can listen to them on the website, or download the typical "calling songs" for 25 species at www.orthoptera.org.uk/Recording/index.php?q=node/707. Keep them on your phone or MP3 player and always have them at hand in the field to help with identification!



Stripe-winged grasshopper (*Stenobothrus lineatus*), male.
Photo by Michael Foley.

For an astonishing example of the complexity and sophistication of the sounds produced by these little insects, listen to the three different recordings of the stripe-winged grasshopper (*Stenobothrus lineatus*), which include the calling song and two courtship songs www.orthoptera.org.uk/account.aspx?ID=38.

The "natural" recordings (as heard without the use of a bat detector) were very kindly provided by Baudewijn Odé, one of the authors of the fantastic Dutch Orthoptera Atlas "De sprinkhanen en krekels van Nederland".

Our sincere thanks also to Malcolm Lee, who provided recordings made through a bat detector - which is how most people will hear them.

A big thank you also to Biren Rathod, web developer at the Biological Records Centre, who put the recordings up on the website.



Website forum

Last year the scheme website enjoyed the addition of a Forum. This is open to all users. Please feel free to post a question, share an observation, advertise an event etc. www.orthoptera.org.uk/Recording/index.php?q=forum.

Several very interesting posts have been put up in the past year, for example on “The rare macropterous form of the Common Groundhopper (*Tetrix undulata f. macroptera*)” by Tim Ransom www.orthoptera.org.uk/Recording/index.php?q=node/62.

The late Charles David put up a post on his discovery of the Italian or Tree Cricket (*Oecanthus pellucens*) on Jersey. The post is reproduced in full below. Charles was very active as county recorder for the Channel Islands. Sadly, he died in September 2012.

forum post by the late Charles David
www.orthoptera.org.uk/Recording/index.php?q=node/63

***Oecanthus pellucens* in the Channel Islands**

The Tree Cricket *Oecanthus pellucens* has been found in Jersey for the last two years. It has been known in the Chausey Islands since 2001. The first Jersey records were in 2010 when I found two immature males near St Ouens Bay and later in the year the song was heard in the same area. In 2011 several individuals of both sexes were discovered within a few hundred yards of the same spot. The easiest way to find the cricket is to look in wild carrot flowers where they apparently sit and eat the flowers and young fruit.

They are unmistakable, light brown in colour, and the male is flattened with its wings laid flat on the top of the abdomen overlapping each other (see the first photo). The second photo is of a female.

Isolated individuals have been recorded at two places in the UK, in Cambridgeshire and Kent, but they may well turn up as a breeding population somewhere soon as the species is extending its range on the continent.

Here is a link to an mp3 file of its song, courtesy of Baudewijn Odé

www.orthoptera.org.uk/Recording/sites/default/files/21%20Oecanthus%20pellucens%20-%20calling%20song.mp3

Charles David



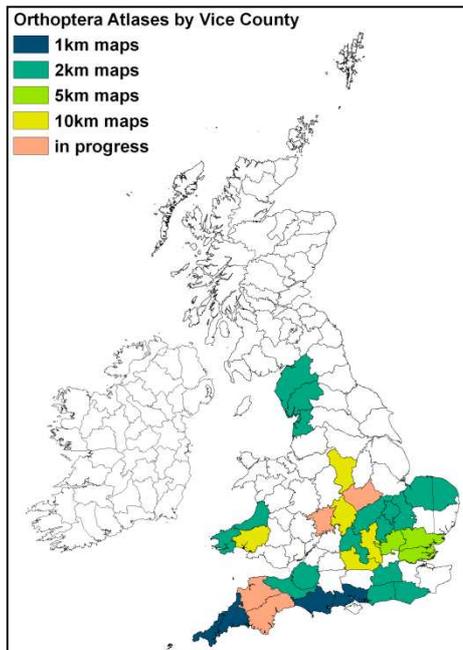
Italian or Tree Cricket (*Oecanthus pellucens*), male.
Photo by Charles David.



Italian or Tree Cricket (*Oecanthus pellucens*), female.
Photo by Charles David.



County atlases



We recently drew up a list of county atlases and similar publications for grasshoppers and allied insects. It is great that there are so many – the map on the left illustrates which counties have been covered, and how finely the maps are resolved.

The current list is appended to this newsletter and it is posted on the website at www.orthoptera.org.uk/Recording/index.php?q=node/364.

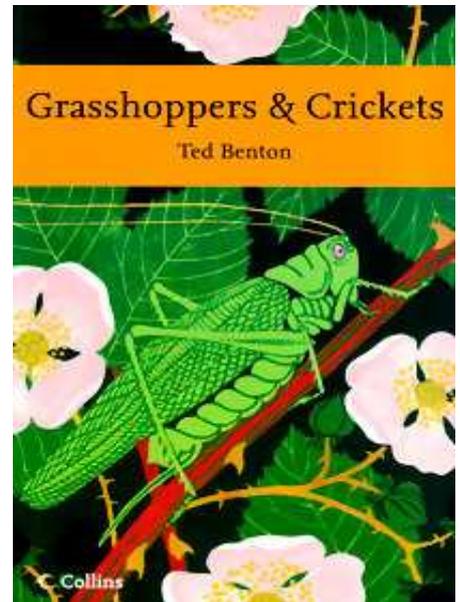
Links for download or purchase of the publications are provided in most cases. Please let us know if you have a copy of any which are not linked or know of any additional ones – we would like to make them all accessible.

And if you would like to collate an atlas for a county which is not yet covered we would be very happy to support you!

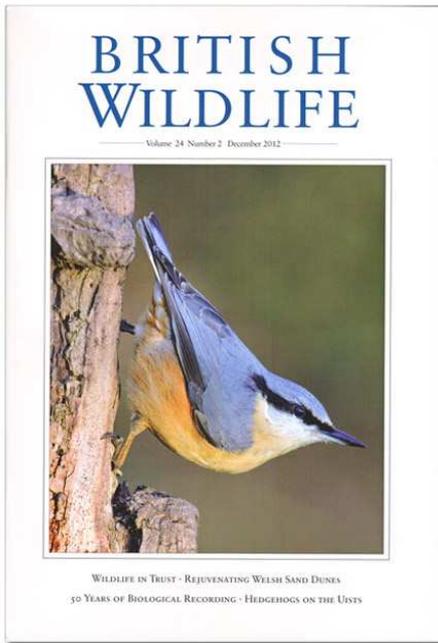


Publications, media and other news

- Ted Benton's eagerly awaited New Naturalist "Grasshoppers and Crickets" was published in July 2012. (544pp., published by Harper Collins). For the first time, the book includes a DVD – with fascinating video clips of grasshopper and cricket behaviour.
- BBC Radio 4's "In our Time" programme recently had an enlightening episode on Alfred Russel Wallace, the co-discoverer of evolution. Melvyn Bragg's guests included George Beccaloni, curator of Orthopteroid insects at the Natural History Museum, London, and Ted Benton from the University of Essex. You can listen to the programme at www.bbc.co.uk/programmes/b01r9rxr or download it at www.bbc.co.uk/podcasts/series/iot. There are many events taking place this year to mark 100 years since the death of Alfred Russel Wallace. You can find a full list at www.nhm.ac.uk/nature-online/science-of-natural-history/wallace.
- BBC Radio 4 also produced an amusing programme entitled "The Etymology of Entomology" – exploring the naming of insects www.bbc.co.uk/programmes/b01r4xw5. If you would like a copy of the podcast, please email orthoptera@ceh.ac.uk.
- The Biological Records Centre will have a stand again at the BBC Gardener's World Live exhibition in the NEC Birmingham from 12-16 June 2013, this year focusing on five garden insects including the Oak bush-cricket *Meconema thalassinum*.



Next issue – Autumn 2013



The next issue of this newsletter will be sent out in autumn 2013. Please send us your contributions to orthoptera@ceh.ac.uk or to the address below.

There is a full archive of present and past newsletters for download at www.orthoptera.org.uk/recording/index.php?q=newsletters.

For news in the meantime please visit the website forum and see Peter Sutton's regular columns in *British Wildlife*, which appear during the summer and autumn.



Spring 2013

Björn Beckmann and Peter Sutton

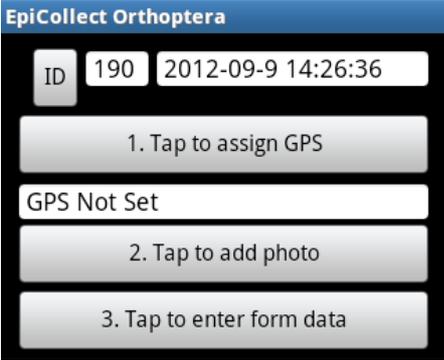
Biological Records Centre
Centre for Ecology & Hydrology
Wallingford
OX10 8BB
UK

+44-(0)1491-692564

orthoptera@ceh.ac.uk

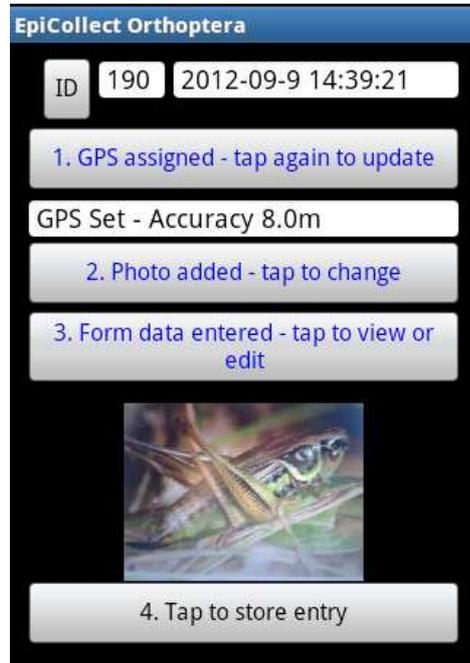
Recording Orthoptera with the “EpiCollect” smartphone app

EpiCollect is available for Android and iPhone. It is a free app developed at Imperial College London.

<p>Install the EpiCollect app on your phone</p>	<p>Search for EpiCollect on your phone’s app store.</p>
<p>Start up EpiCollect.</p> <p>Press your phone’s menu button, select Load Project and type in “Orthoptera”.</p> <p>When the project is loaded you can start recording by tapping New Entry.</p>	
<p>Tap 1. to set the GPS location. You can only record where you are, you cannot set a different location. You do not require network reception, only a GPS signal.</p> <p>Tap 2. to add a photo. This is required if you are not sure of the identification.</p> <p>Tap 3. to select the species name etc. – the next screen will appear.</p>	
<p>Select the species. The list includes 22 species in order of commonness. If your species is not on the list select “Other” and type the name into “comments”.</p> <p>Provide further information such as the number seen, stage, sex and site name. These are optional - only the species name is required.</p> <p>You need to enter your recorder name with your first record only. EpiCollect stores a user number per phone so it is not necessary to type it again for every record – we will fill it in automatically later.</p> <p>Scroll down and tap Confirm when you are done.</p>	

Tap 4. to save the record.

Then either select "New Entry" to make another record, or "List / Sync Entries" in order to upload your records to the EpiCollect database.



You can also upload your records to the EpiCollect database later (when you have network reception) by selecting "List Entries" on the home screen.

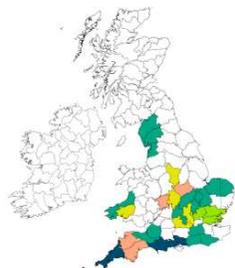


Your records will appear on the project homepage <http://www.epicollect.net/project.html?name=Orthoptera>

Please check that they all look correct. If you find a mistake, please email orthoptera@ceh.ac.uk

We will regularly transfer valid records to the Orthoptera scheme database.

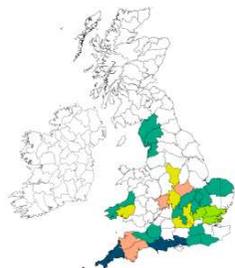




County Atlases of Grasshoppers & relatives

see www.orthoptera.org.uk/recording/index.php?q=node/364 for updates

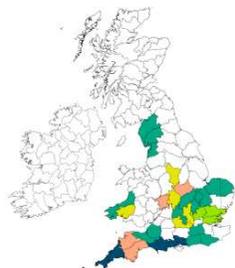
County name	Vice County	Scale	Date	Title	Author	Publisher
Cornwall and Isles of Scilly	1,2	10km	1990	Grasshoppers and Related Insects of Cornwall	E.C.M. Haes	Cornish Biological Records Unit, Redruth. Cornish Biological Records 12 (1990).
Cornwall and Isles of Scilly	1,2	1km	1999	Orthopteroid Insects of Cornwall and the Isles of Scilly: a revised provisional atlas	E.C.M. Haes	Cornwall and Isles of Scilly Federation for Biological Recorders. Occasional Publication no. 1. http://www.erccis.org.uk/resources/publications/publications_to_purchase.htm
Cornwall and Isles of Scilly	1,2	2km	2004	Orthopteroid Insects of Cornwall and the Isles of Scilly: an updated provisional atlas	E.C.M. Haes	Cornwall and Isles of Scilly Federation for Biological Recorders. Occasional Publication no. 2. http://www.erccis.org.uk/resources/publications/publications_to_purchase.htm
Devon	3,4	10km	1987	Grasshoppers, Crickets and Bush-crickets in Devon	M. Davies	Nature in Devon, 8: 45-64. www.orthoptera.org.uk/Recording/sites/default/files/Grasshoppers,%20Crickets%20and%20Bush-Crickets%20in%20Devon%20-%20Martin%20Davies%201987.pdf (5MB)
Devon	3,4		in progress	Atlas of bush-crickets, grasshoppers and allied insects in Devon	Adrian Colston	Adrian Colston is county Orthoptera recorder for Devon and is keen to start work on a county atlas. He has previously written accounts for Cambridgeshire, Huntingdonshire and Northamptonshire (see below).
Somerset	5,6	2km	2011	The Orthoptera and allied insects of Somerset	Robert S. Cropper	Published by the author. http://www.abebooks.co.uk/Orthoptera-allied-insects-Somerset-Cropper-R.S/8442105020/bd
Wiltshire	7,8	locality lists	1957	Wiltshire Orthopteroids	D.K.McE. Kevan	Entomologist 90: 12-16. www.orthoptera.org.uk/Recording/sites/default/files/Wiltshire%20Orthopteroids%20-%20Kevan%201957.pdf (2MB)
Dorset	9	1km	2011	The Grasshoppers, Bush-crickets and Allies of Dorset	Bryan Edwards	Dorset Environmental Records Centre http://www.nhbs.com/the_grasshoppers_bush_crickets_and_allies_of_dorset_tefno_180209.html



County Atlases of Grasshoppers & relatives

see www.orthoptera.org.uk/recording/index.php?q=node/364 for updates

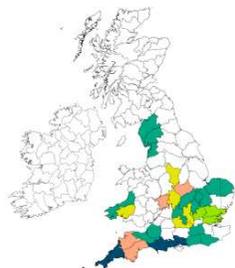
County name	Vice County	Scale	Date	Title	Author	Publisher
Dorset	9	1 km	1992	The Distribution of Orthoptera in Dorset.	A. Mahon	Recording Dorset 2: 2-9. www.derc.org.uk/general/general_files/rd2.pdf
New Forest	part of 11	1km	1985	Orthoptera of the New Forest and its Environs. Species distribution maps 1980-85.	A.R. Welstead & N.I. Welstead	Privately published. Hythe.
Sussex	13,14	2km	1972-76	Orthoptera in Sussex	E.C.M. Haes	Entomologist's Gazette 23:167-168; Entomologist's Gazette 24:29-46; Entomologist's Gazette 27:181-202.
Sussex	13,14	10km	2002	Sussex Orthoptera Atlas Online	J. Paul	http://freepages.pavilion.net/tetrix/specieslist.html
Surrey	17	2km	1999	Grasshoppers and Crickets of Surrey	David W. Baldock	Surrey Wildlife Trust www.surreywildlifegifts.org.uk/collections/atlas-series#sthash.3DUyZHby.dpuf
Essex	18,19	5km	1997	Grasshoppers and Crickets (Orthoptera) of Essex	Alan Wake	Colchester Natural History Society www.nhbs.com/grasshoppers_and_crickets_orthoptera_of_essex_tefno_66777.html www.essexfieldclub.org.uk/portal/p/Essex+Grasshopper+Recording
Hertfordshire	20	5km	1991	Hertfordshire Orthoptera & related insects	John Widgery	Hertfordshire Natural History Society Transactions, Vol 31, Part 1, pp 18-24. May 1991.
London	20,21	locality lists	1958	The Distribution of grasshoppers and allied insects in the London area.	R.M. Payne	Lond. Nat. 37: 102-115.
Berkshire, Buckinghamshire and Oxfordshire	22,23,24	10km	1989	Grasshoppers and Crickets of Berkshire, Buckinghamshire and Oxfordshire	John Paul	Pisces, Oxford. www.pembooks.demon.co.uk/new07.html
Oxfordshire and part of Berkshire	23 and part of 22	2km	1984	An Atlas of Oxfordshire Orthoptera	D. Sheppard & J.M. Campbell	Oxfordshire County Council. www.orthoptera.org.uk/Recording/sites/default/files/An%20Atlas%20of%20Oxfordshire%20Orthoptera%20-%20Sheppard%20and%20Campbell%201984.pdf (2MB)



County Atlases of Grasshoppers & relatives

see www.orthoptera.org.uk/recording/index.php?q=node/364 for updates

County name	Vice County	Scale	Date	Title	Author	Publisher
Norfolk	27,28	2km	2001	Grasshoppers and allied insects of Norfolk	D.I. Richmond	Norfolk and Norwich Naturalists' Society Occasional Publication no.7 www.nnns.org.uk/sites/nnns.org.uk/files/imce/user11/speciesguides/Grasshoppers.pdf
Cambridgeshire	29	2km	1998	A provisional atlas of bush-crickets, grasshoppers and allied insects in 'old' Cambridgeshire	A. Colston	Nature in Cambridgeshire 40: 20-36. www.orthoptera.org.uk/Recording/sites/default/files/A%20provisional%20atlas%20of%20bush-crickets,%20grasshoppers%20and%20allied%20insects%20in%20old%20Cambridgeshire%20-%20Adrian%20Colston%201998.pdf (2MB)
Bedfordshire	30	2km	1978	The distribution of Common Bush-crickets and Grasshoppers in Bedfordshire	D.G. Rands	Bedfordshire Nat. 32: 25-30.
Huntingdonshire	31	2 km	1998	Orthopteroids in Huntingdonshire	A. Colston	Anniversary Review 1948-1998, 53-65. Huntingdonshire Fauna and Flora Society. www.orthoptera.org.uk/Recording/sites/default/files/Orthopteroids%20in%20Huntingdonshire%20-%20Adrian%20Colston%201998.pdf
Northamptonshire	32	2km	2000	A provisional atlas of bush-crickets, grasshoppers and allied insects in Northamptonshire	A. Colston	Nature in Northamptonshire 1. www.orthoptera.org.uk/Recording/sites/default/files/Northamptonshire%20Bush%20Crickets,%20Grasshoppers%20and%20Allied%20Insects%20-%20Adrian%20Colston%202000.pdf (7MB)
Gloucestershire	33,34	locality lists	1965	Synopsis of the Information available concerning Dictyoptera, Orthoptera and Dermaptera in Gloucestershire	R.S. George	Proc. Cotteswold Nat. Fld Club 31: 196-203.
Worcestershire	37		in progress	Orthoptera and allied insects of Worcestershire	Gary Farmer	For details see http://worcestershireorthoptera.weebly.com Please contribute records!



County Atlases of Grasshoppers & relatives

see www.orthoptera.org.uk/recording/index.php?q=node/364 for updates

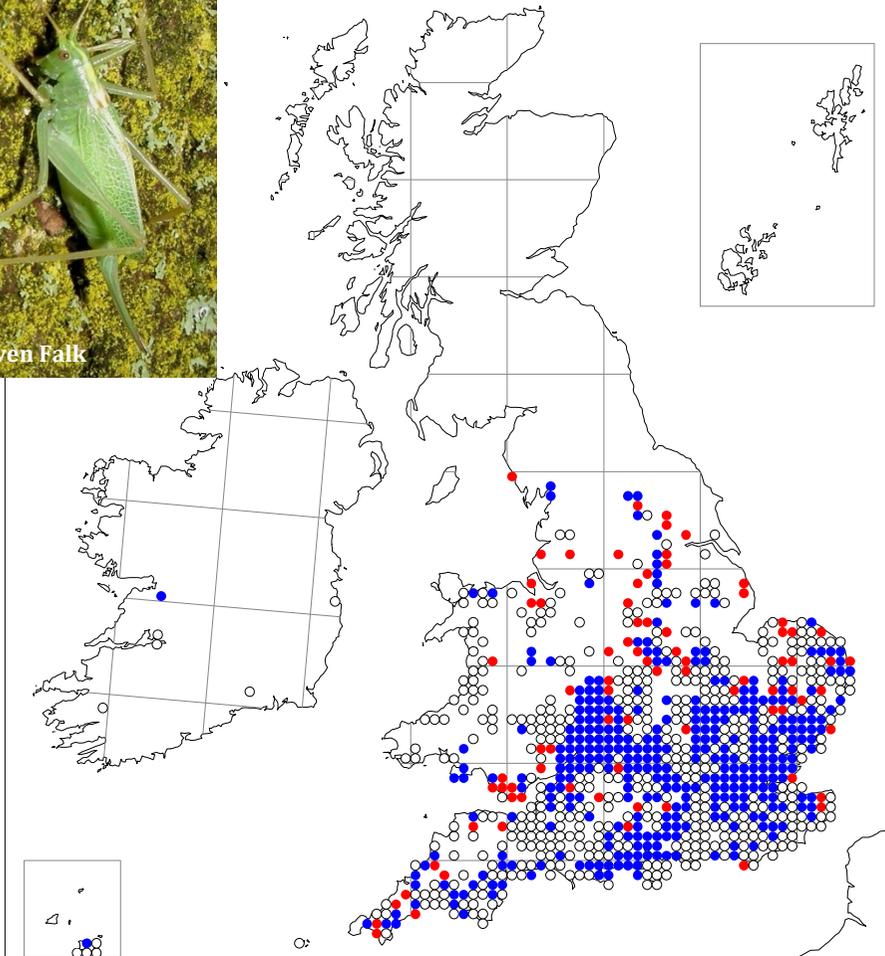
County name	Vice County	Scale	Date	Title	Author	Publisher
Warwickshire	38	10km	1984	Distribution Atlas: Orthopteroids in Warwickshire.	P. Copson	Warwick Museum, Warwick.
Carmarthenshire	44	10km lists	1984/5	Orthoptera (Grasshoppers, Bush-crickets and Crickets) in Carmarthenshire	I.K. Morgan	Llanelli Naturalist Newsletter, Dec 1984 and March 1985. www.llanellinaturalists.org.uk/index.php/December-1984/invertebrate-recording-1984-odonata-orthoptera-syrphidae.html
Pembrokeshire	45	2km	1985	Orthoptera of Pembrokeshire A tetrad survey to 1984.	J.C. Comont	Unpublished.
Ceredigion / Cardiganshire	46	2km	1992	Provisional Distribution Maps for the Orthoptera of Ceredigion	A.P. Fowles	Countryside Council for Wales. www.orthoptera.org.uk/Recording/sites/default/files/Provisional%20Distribution%20Maps%20for%20the%20Orthoptera%20of%20Ceredigion%20-%20Adrian%20Fowles%201992.pdf (11MB)
Dyfed	44,45, 46	10km	1986	Crickets and Grasshoppers in Dyfed	A.P. Fowles	Dyfed Invertebrate Group Newsletter 1:7-12. This, and subsequent observations available at: http://yrefail.net/dig/DIG_contents.htm
Rutland	part of 55	2km	in progress	Rutland Orthoptera	P. Rudkin	maps published in Fieldfare, the Journal of the Rutland Natural History Society, starting in No. 272(284), January 2013. County atlas in prep.
Derbyshire	57	10km	1991	The status of grasshoppers and crickets in Derbyshire	Roy Frost	Journal of the Derbyshire Entomological Society, no 105, 1991, pp12-21.
North Lancashire	60	2km	1997	Orthoptera of North Lancashire	Jennifer Newton	Lancashire and Cheshire Entomological Society, Annual report and proceedings for 1997-99, Vols 121-123 pp. 12-23.
Cumbria	69,70	2km	1993	Grasshoppers and Crickets in Cumbria	Jennifer Newton	Cumbria Biological Records Centre at Tullie House Museum, Carlisle. Correspondence to Keeper of Natural Sciences, Tullie House Museum, Castle Street, Carlisle, CA3 8TP. Excellent online atlas at: www.lakelandwildlife.co.uk/grasshoppers.htm

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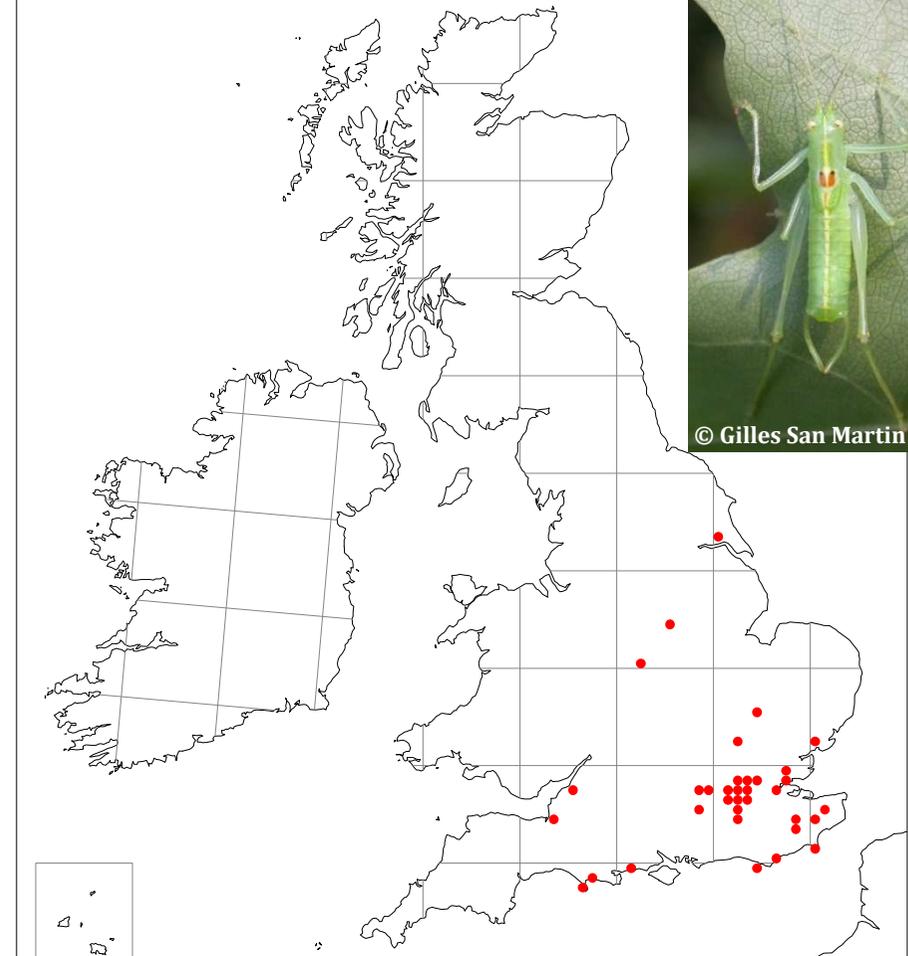
Oak Bush Cricket, *Meconema thalassinum*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Southern Oak Bush Cricket, *Meconema meridionale*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

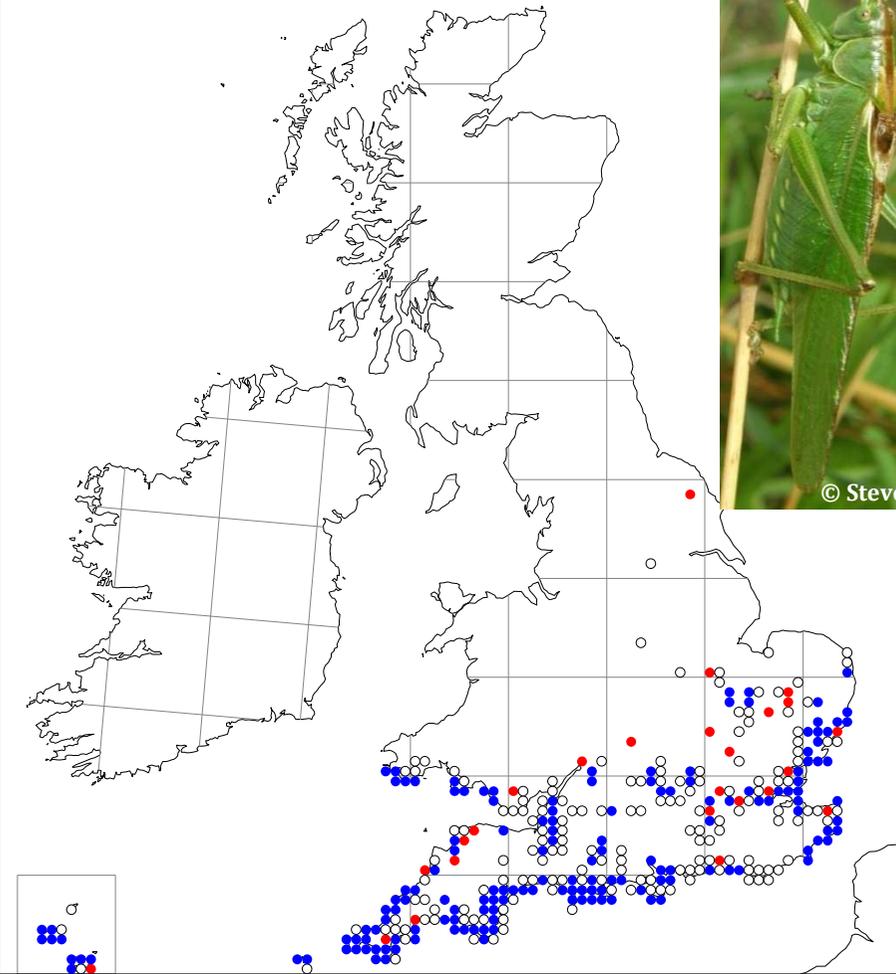


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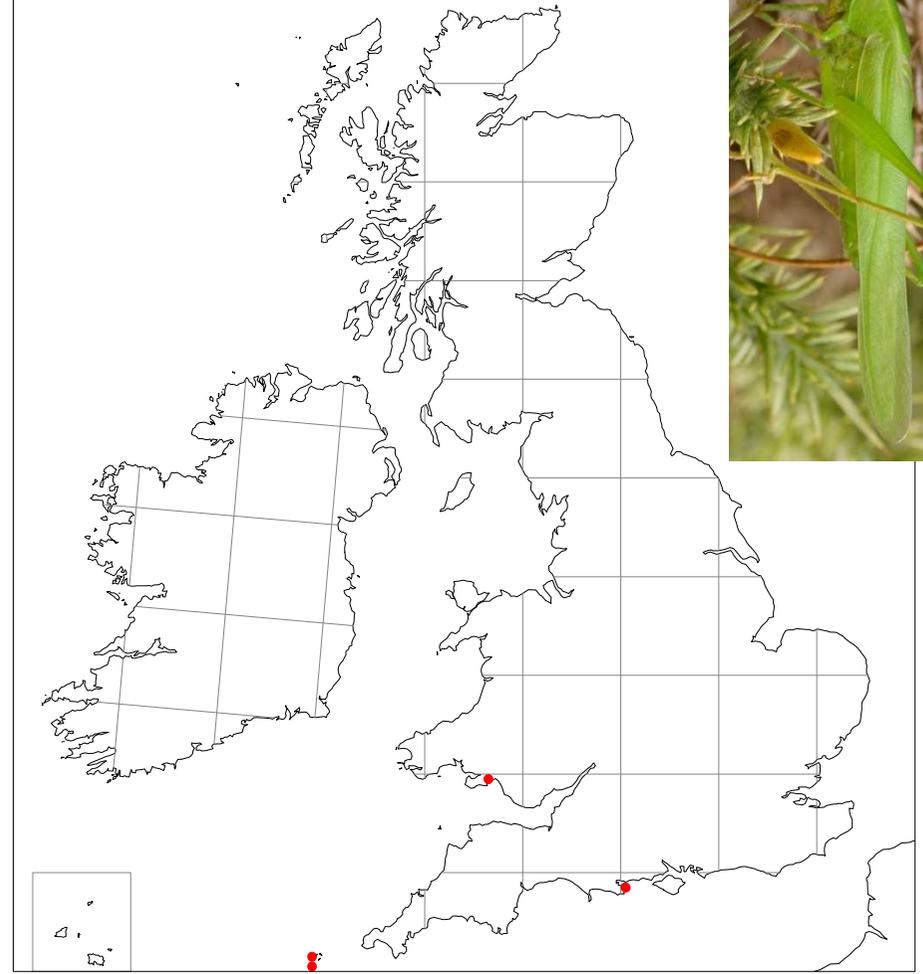
Great Green Bush Cricket, *Tettigonia viridissima*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Large Conehead, *Ruspolia nitidula*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

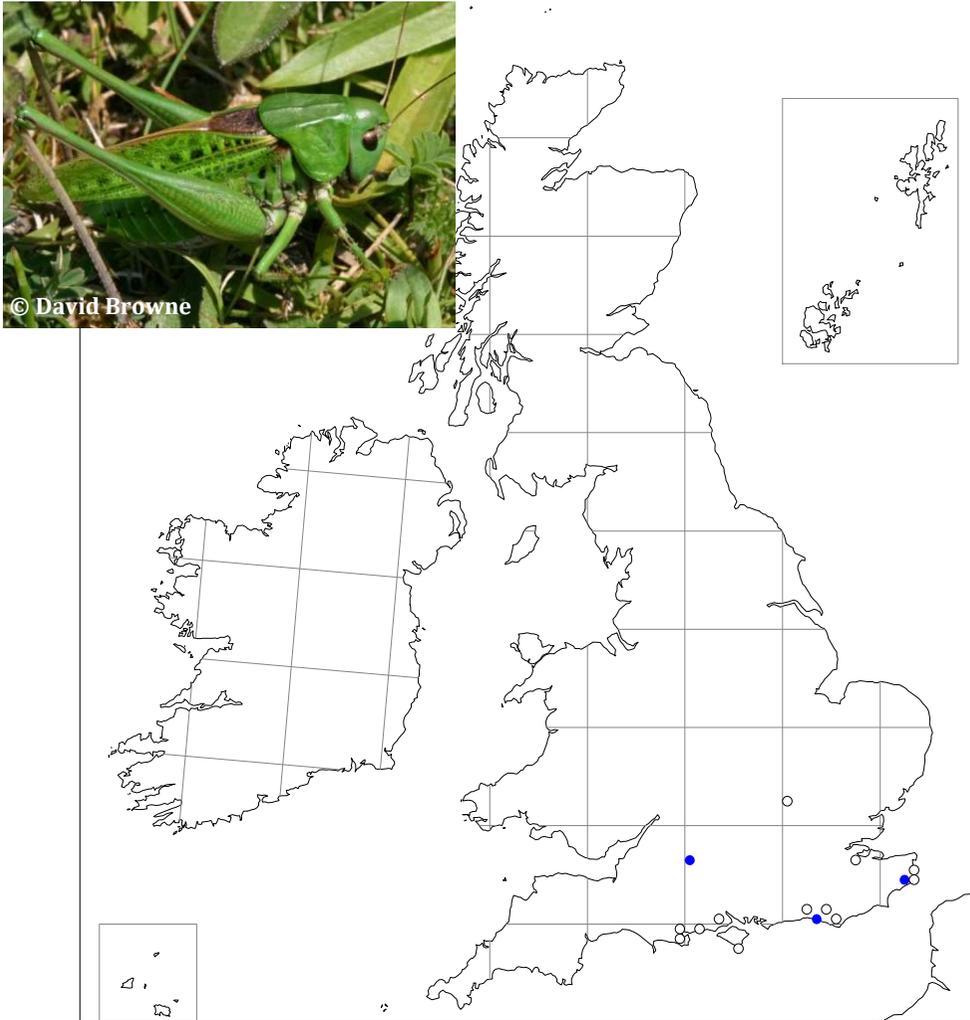


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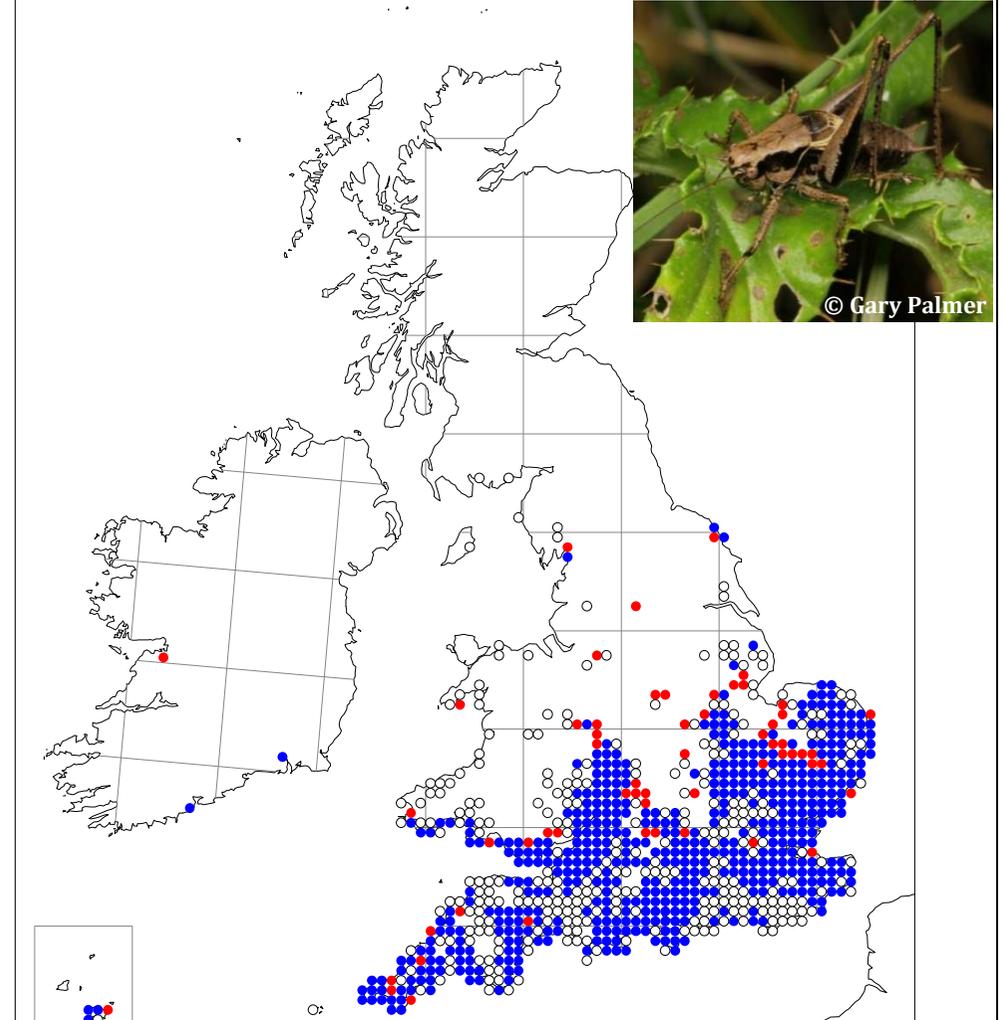
Wartbiter, *Decticus verrucivorus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Dark Bush Cricket, *Pholidoptera griseoptera*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

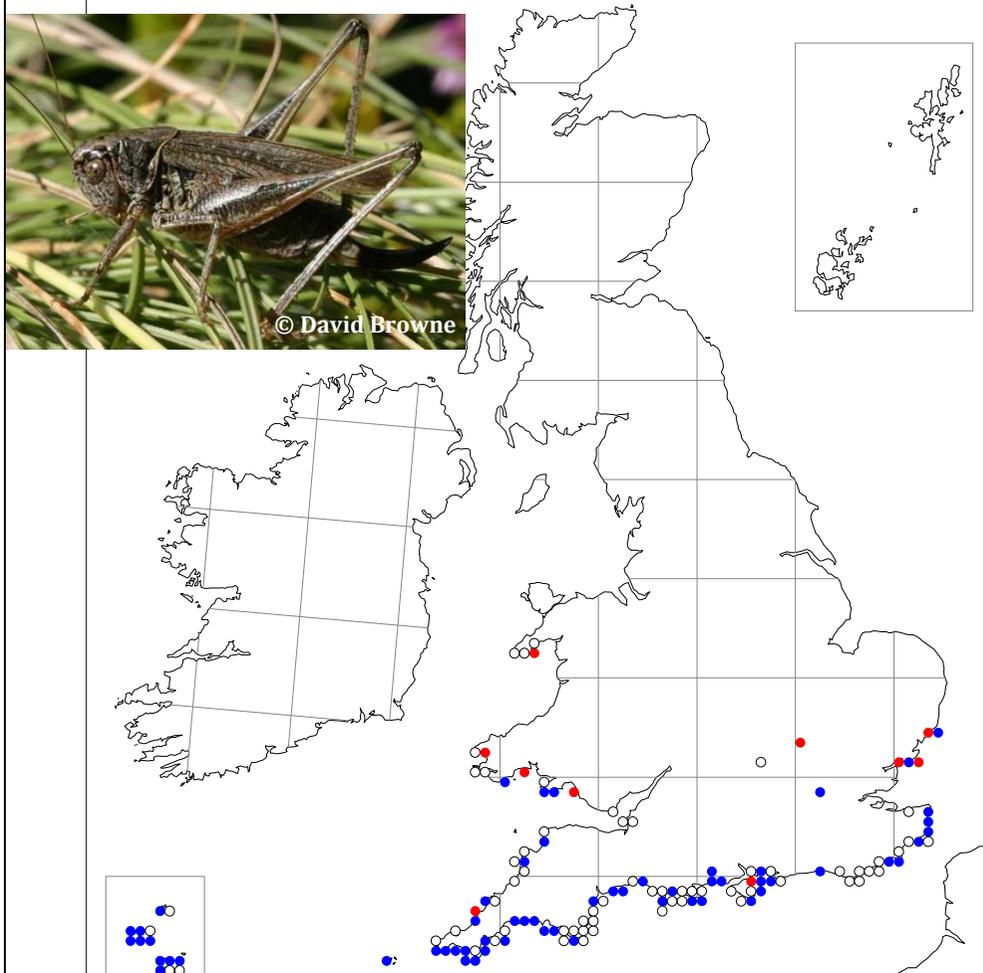


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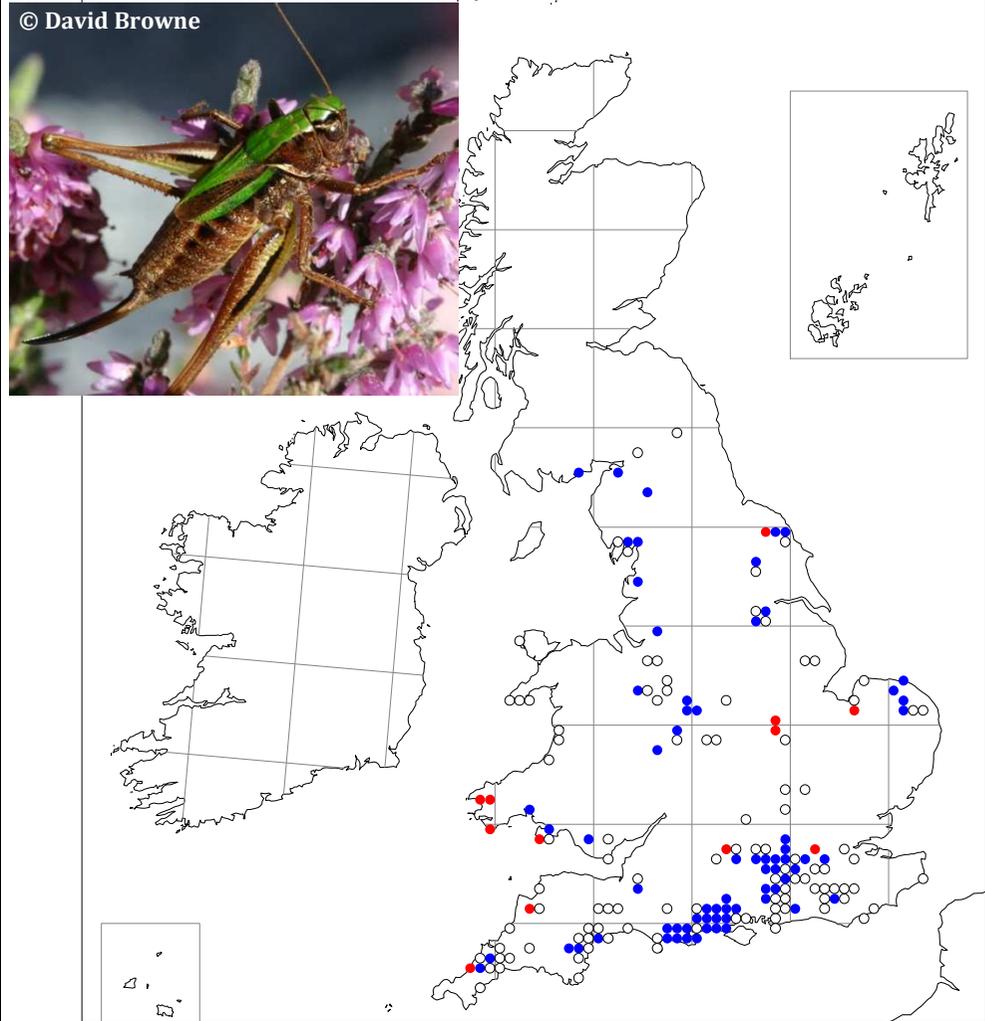
Grey Bush Cricket, *Platycleis albopunctata*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Bog Bush Cricket, *Metriopectera brachyptera*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

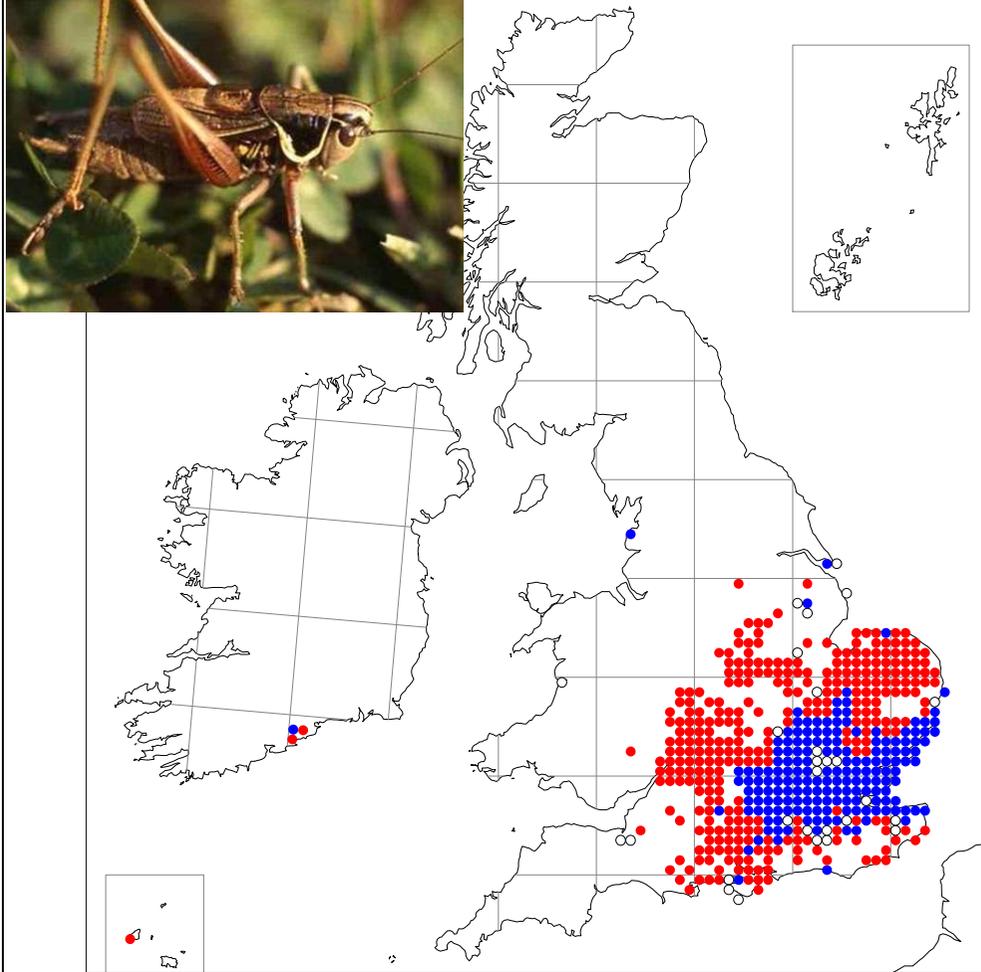


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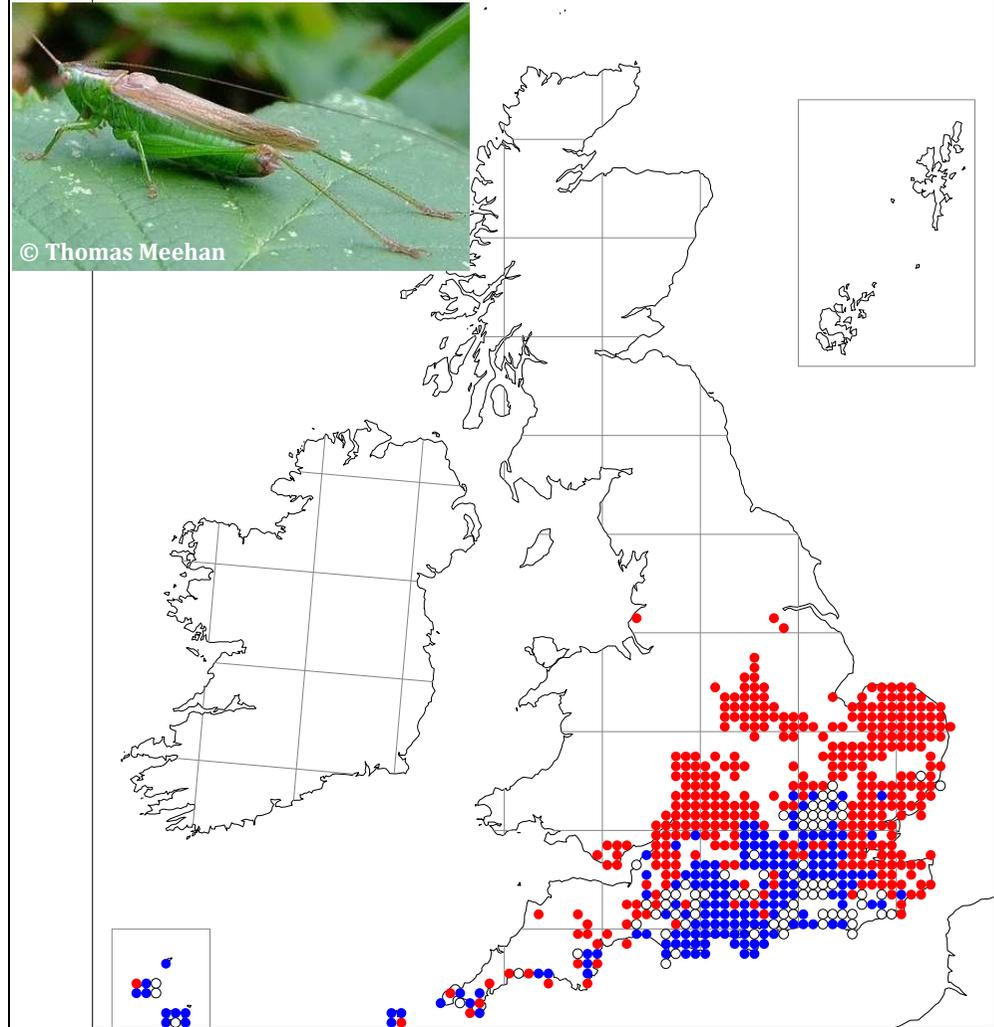
Roesel's Bush Cricket, *Metriopectera roeselii*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Long-winged Conehead, *Conocephalus discolor*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

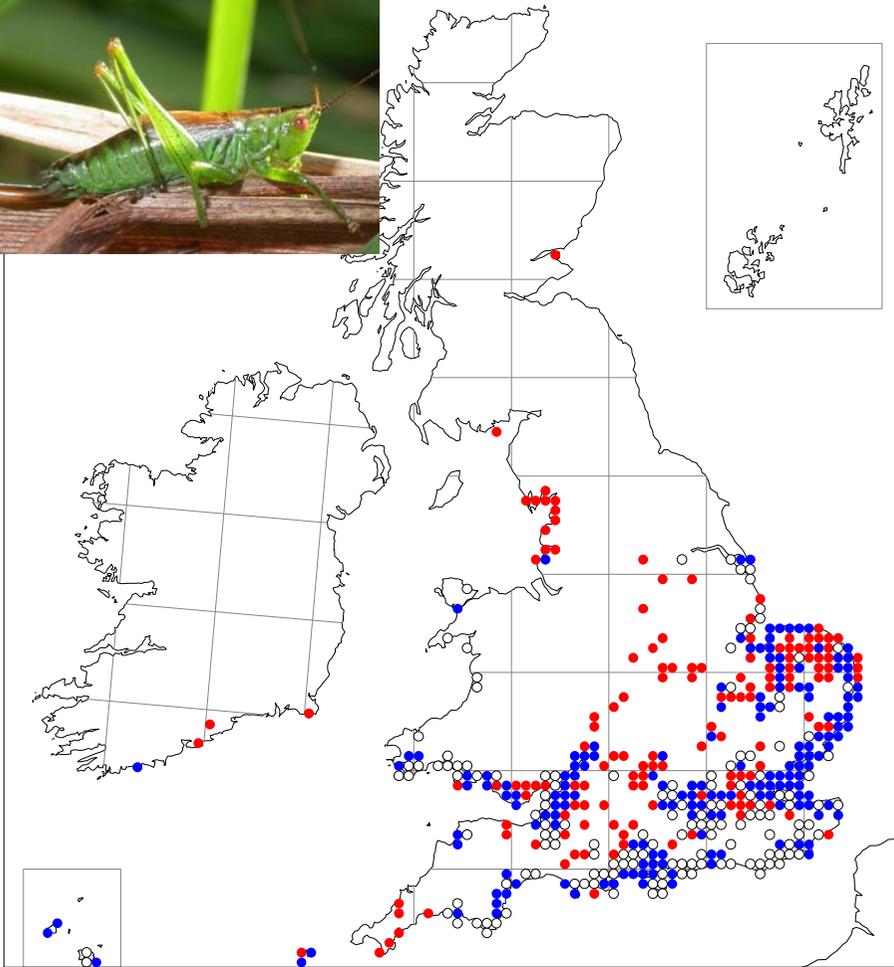


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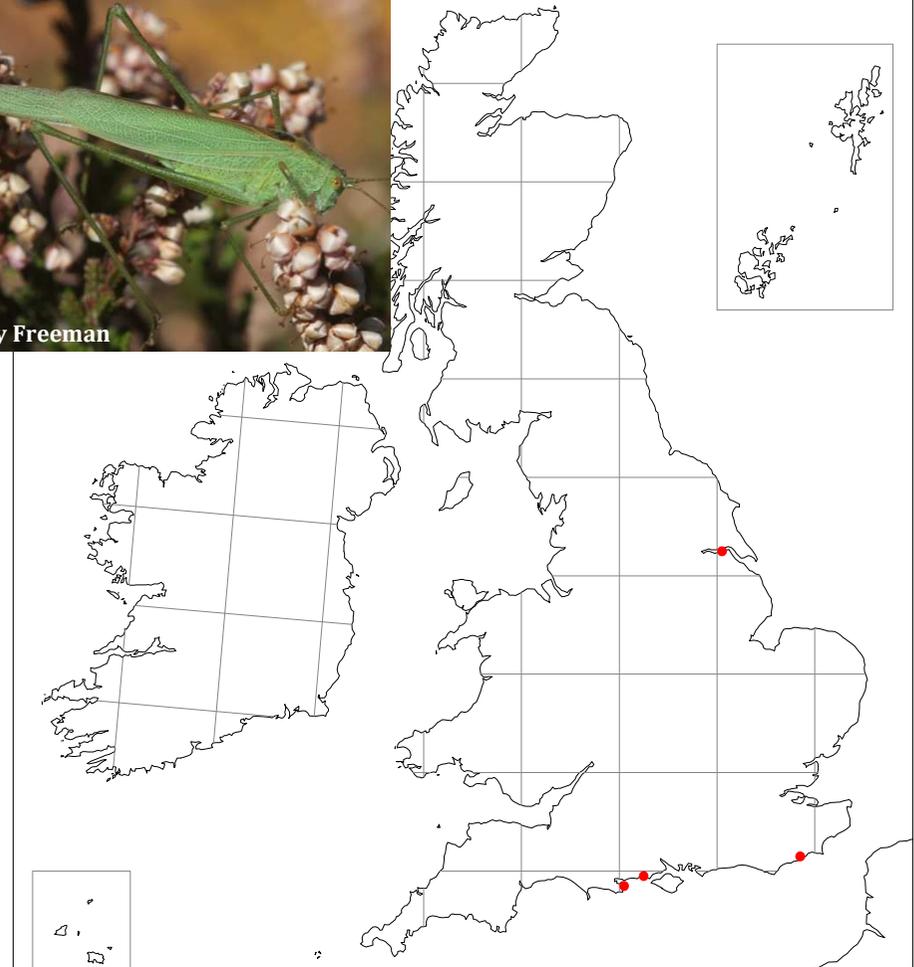
Short-winged Conehead, *Conocephalus dorsalis*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Sickle-bearing Bush Cricket, *Phaneroptera falcata*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

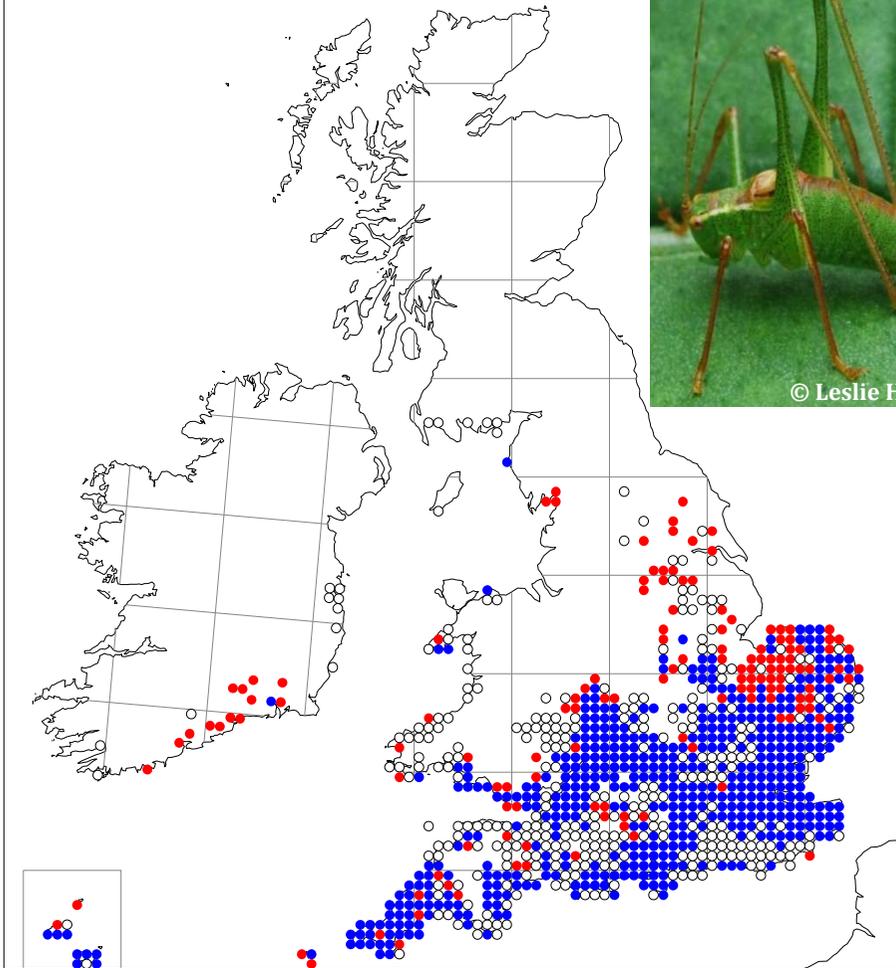


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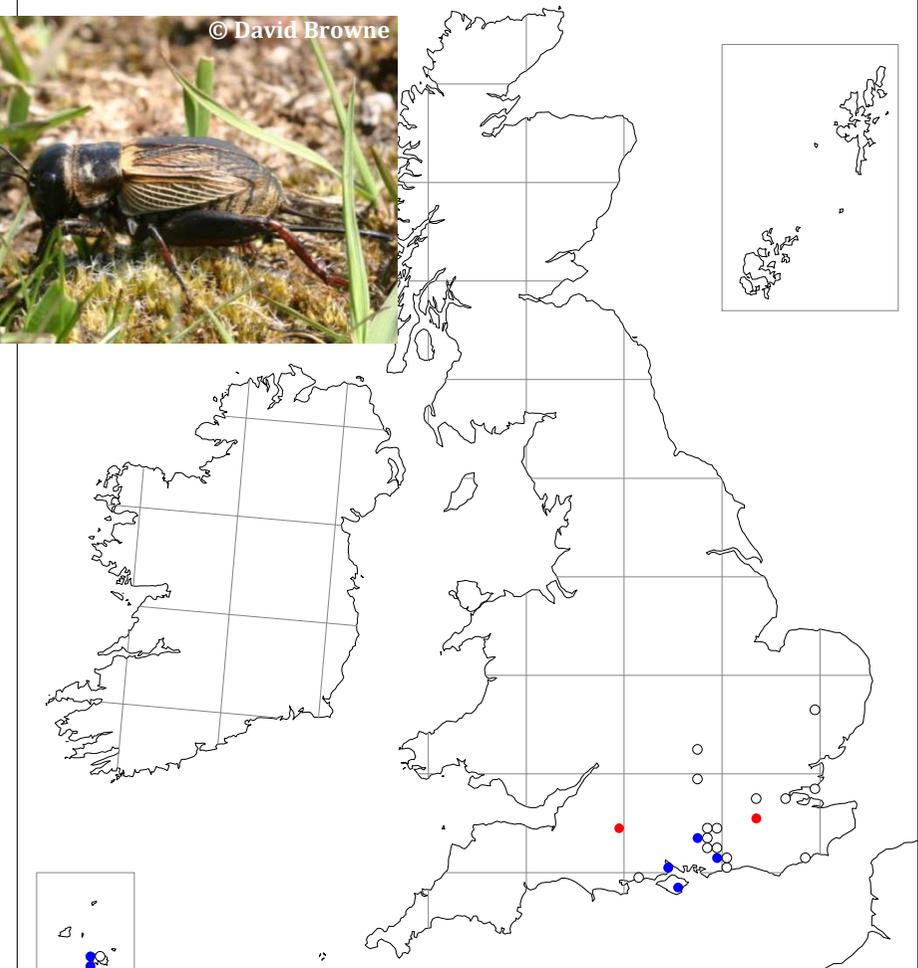
Speckled Bush Cricket, *Leptophyes punctatissima*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Field Cricket, *Gryllus campestris*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



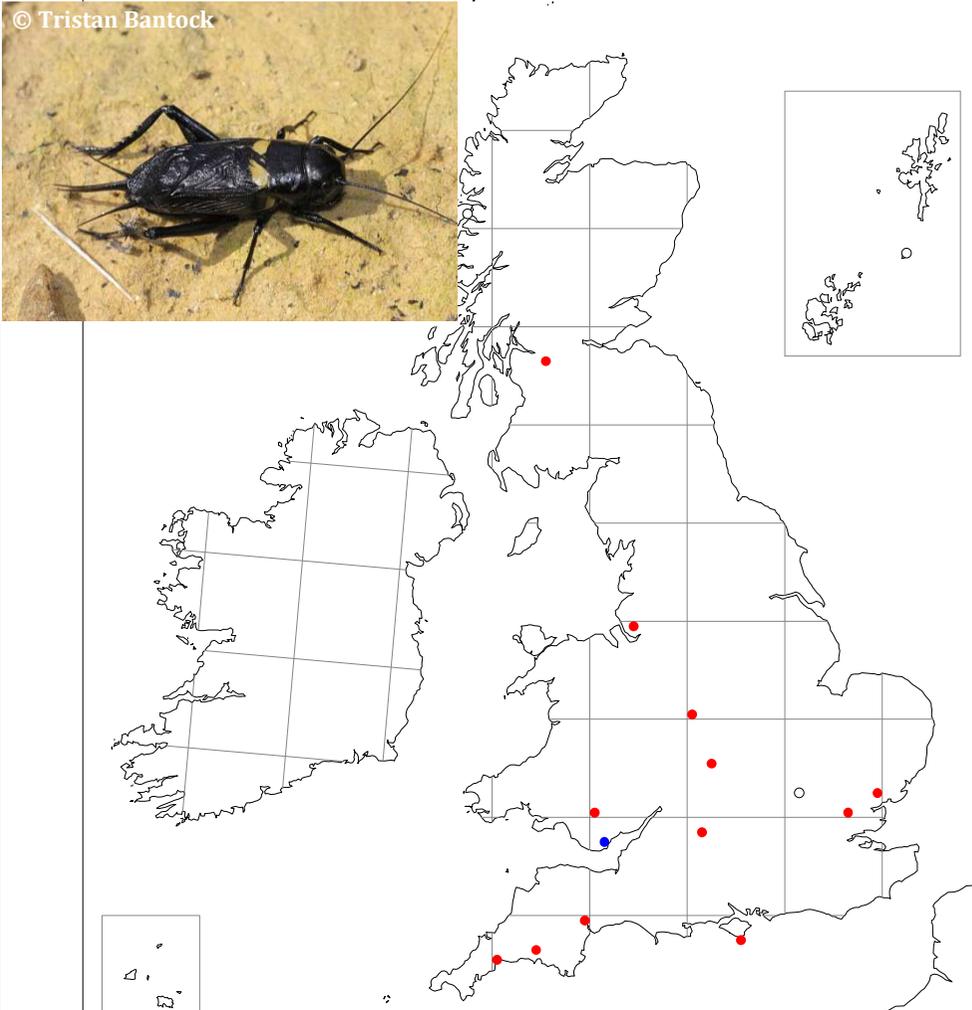
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Southern Field-cricket, *Gryllus bimaculatus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

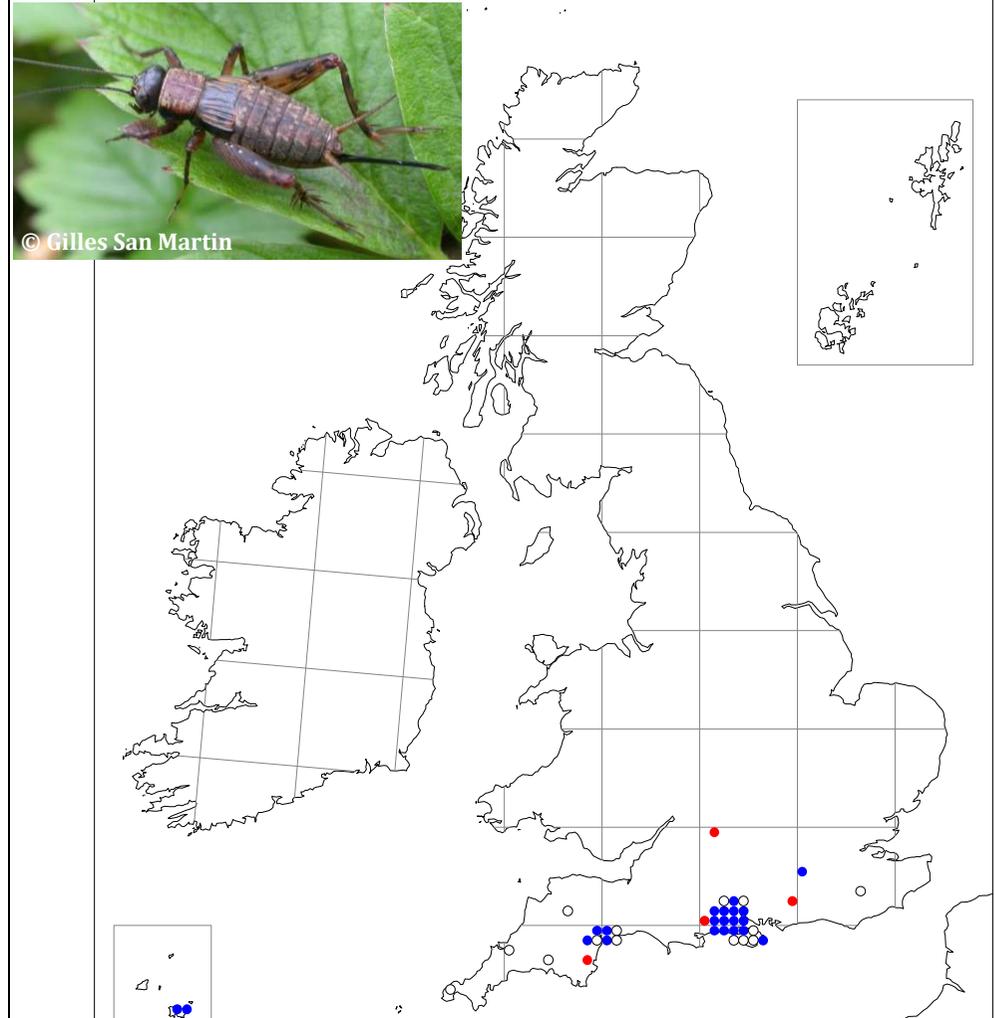
© Tristan Bantock



Wood Cricket, *Nemobius sylvestris*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Gilles San Martin

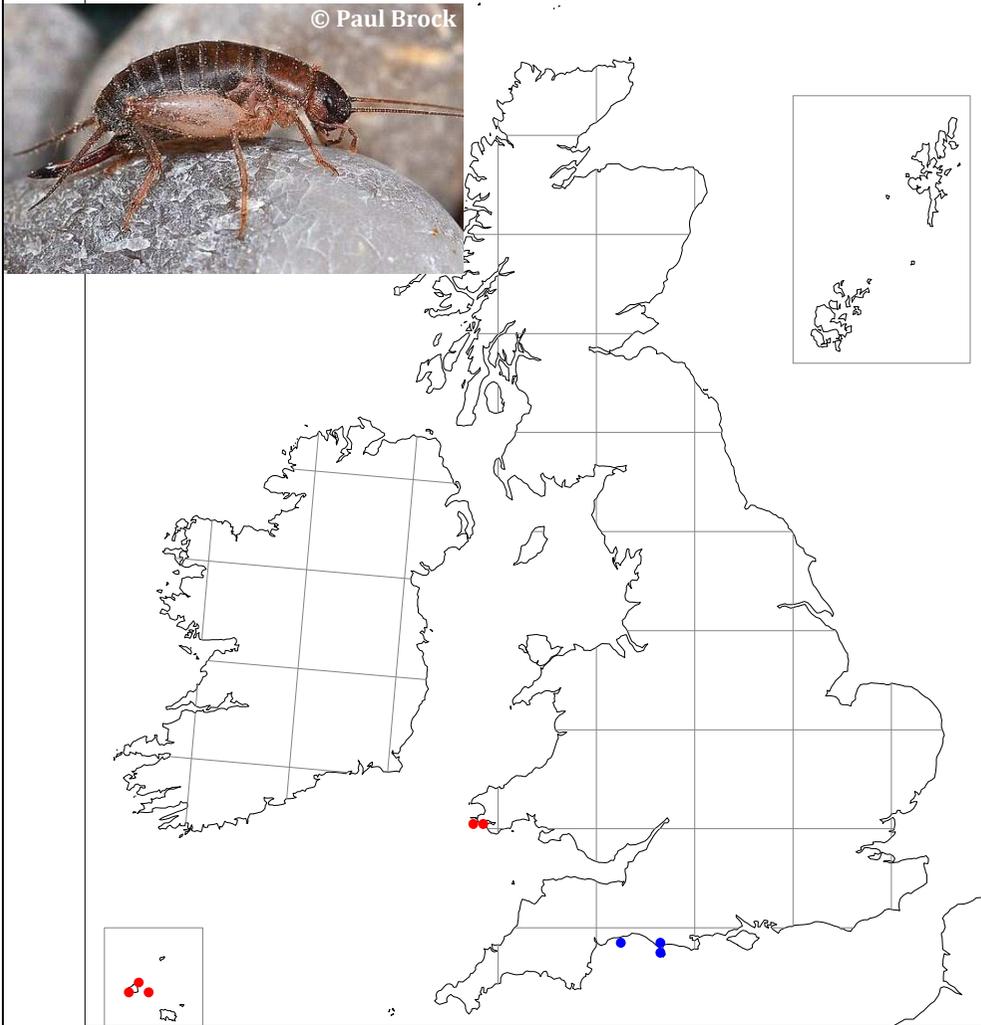


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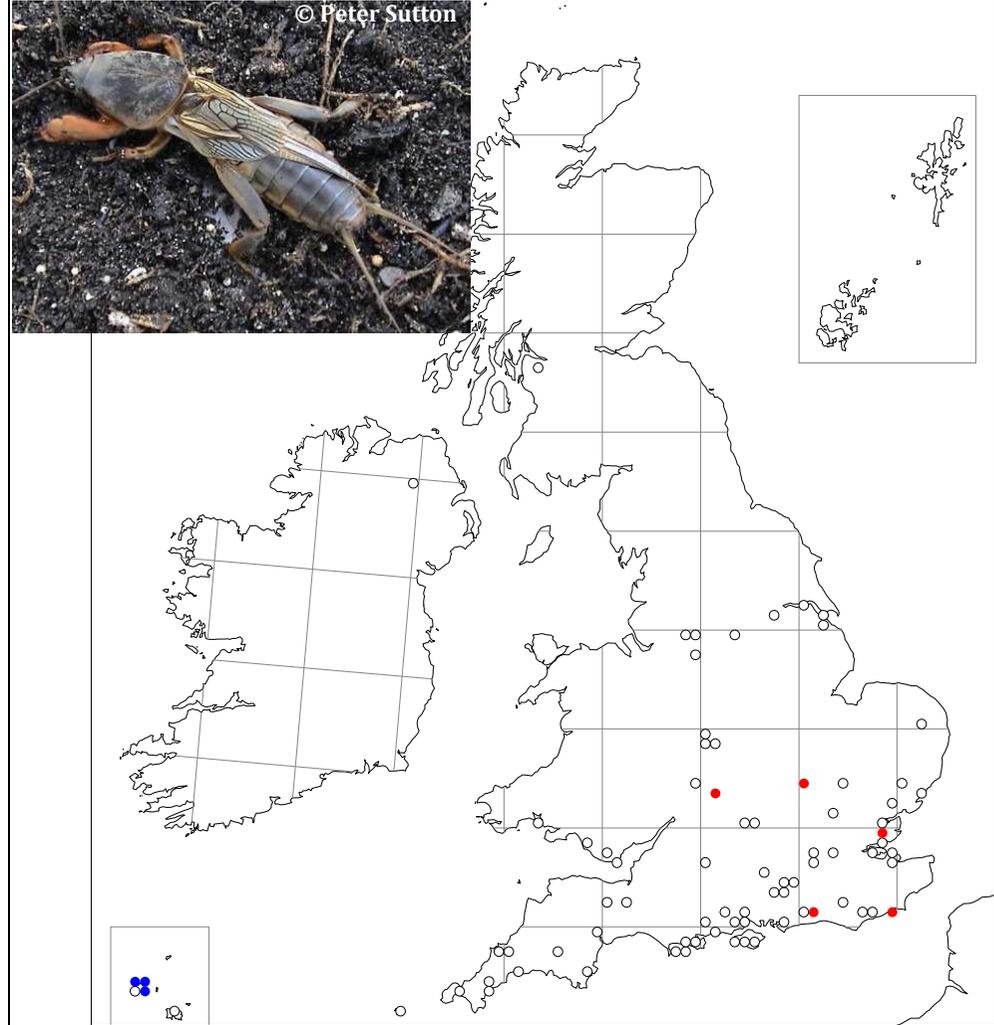
Scaly Cricket, *Pseudmogoplistes vicentae*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Mole Cricket, *Gryllotalpa gryllotalpa*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

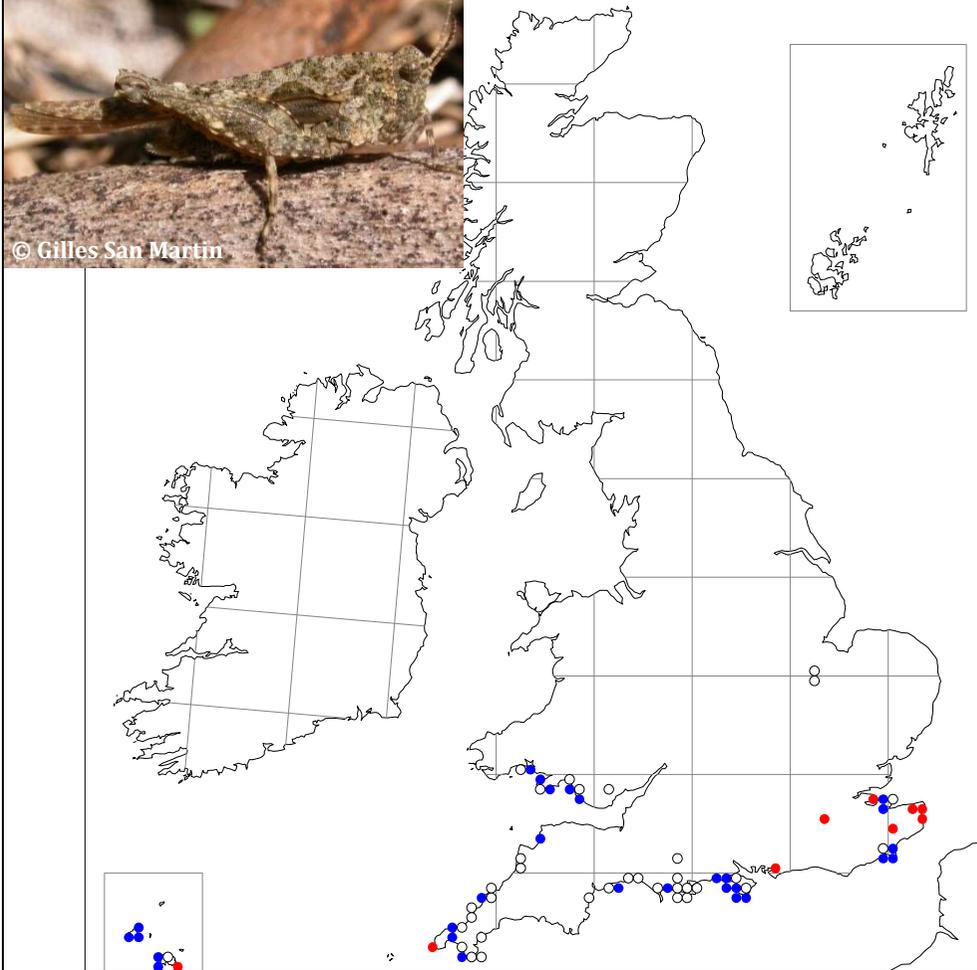


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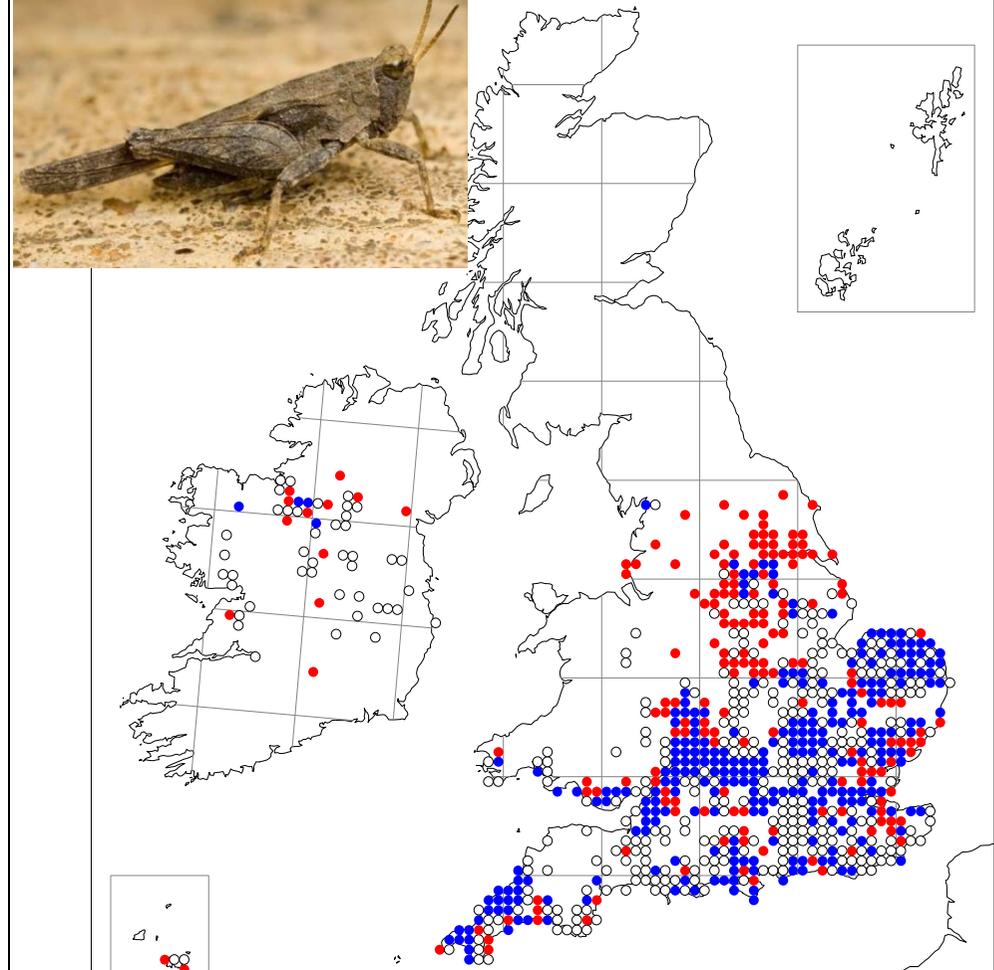
Cepero's Ground-Hopper, *Tetrix ceperoi*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Slender Ground-Hopper, *Tetrix subulata*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



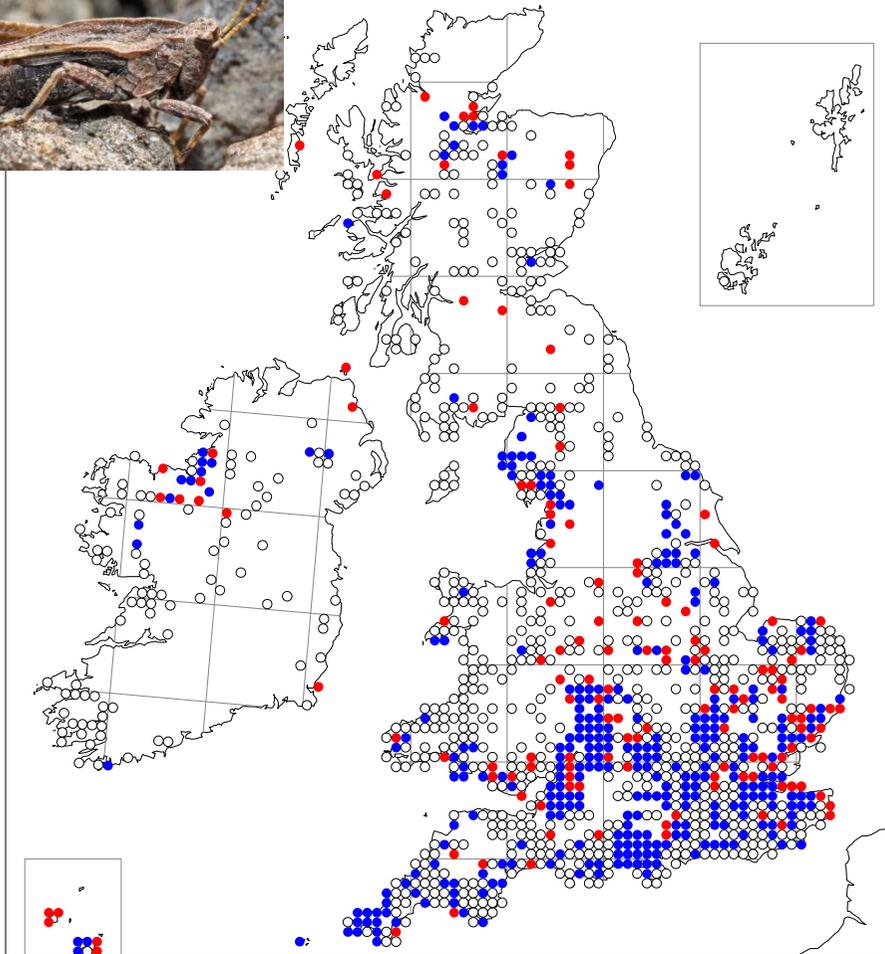
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Common Ground-Hopper, *Tetrix undulata*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

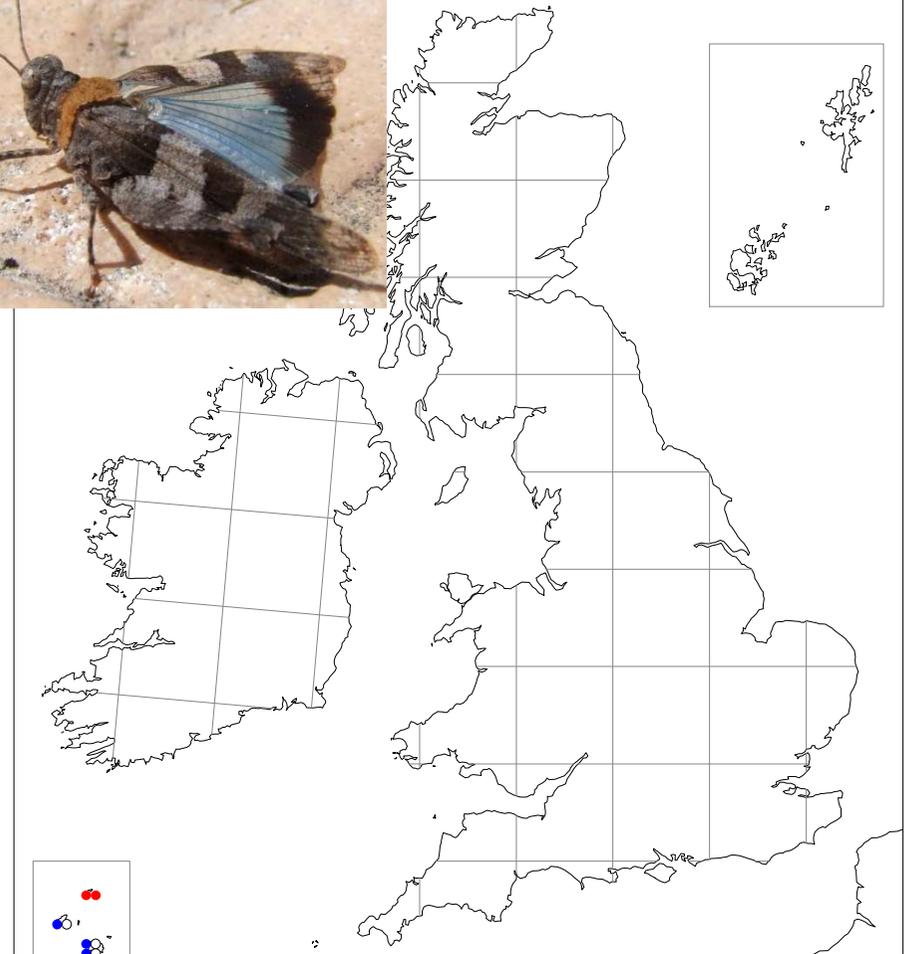
© Tim Ransom



Blue-winged Grasshopper, *Oedipoda caerulea*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Colleen Potter

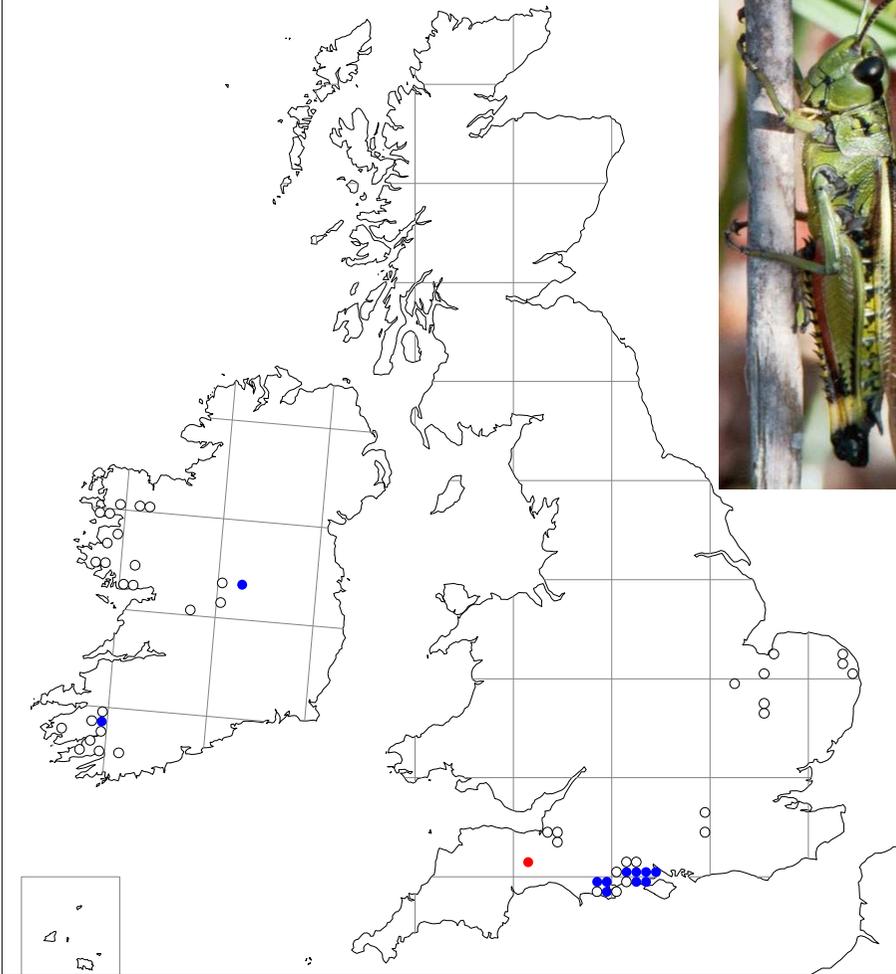


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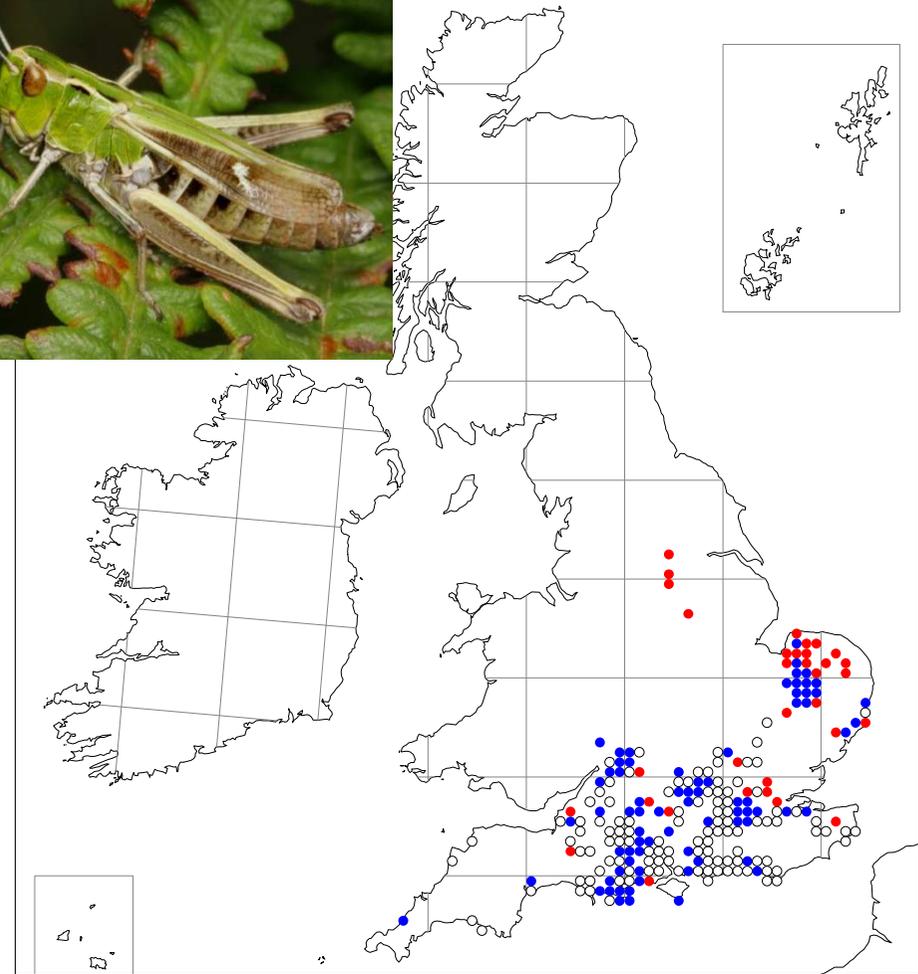
Large Marsh Grasshopper, *Stethophyma grossum*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Stripe-winged Grasshopper, *Stenobothrus lineatus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



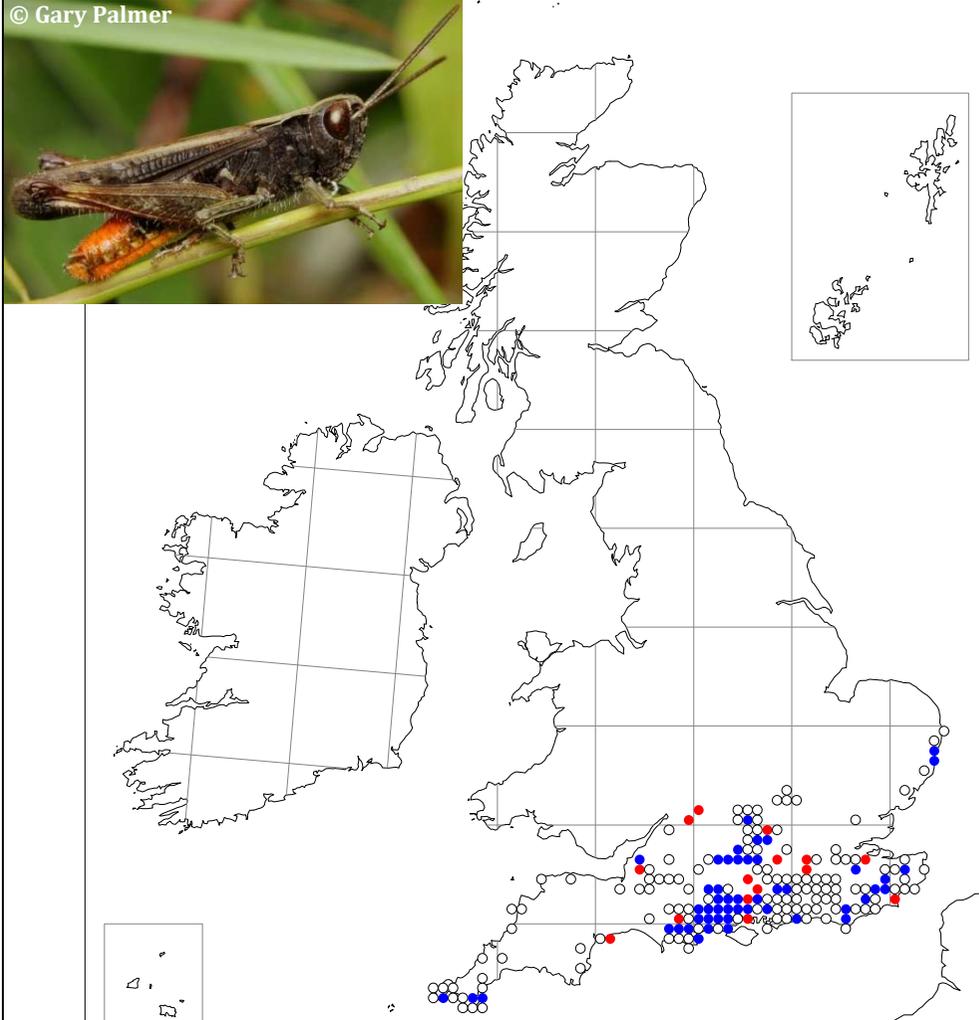
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Woodland Grasshopper, *Omocestus rufipes*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

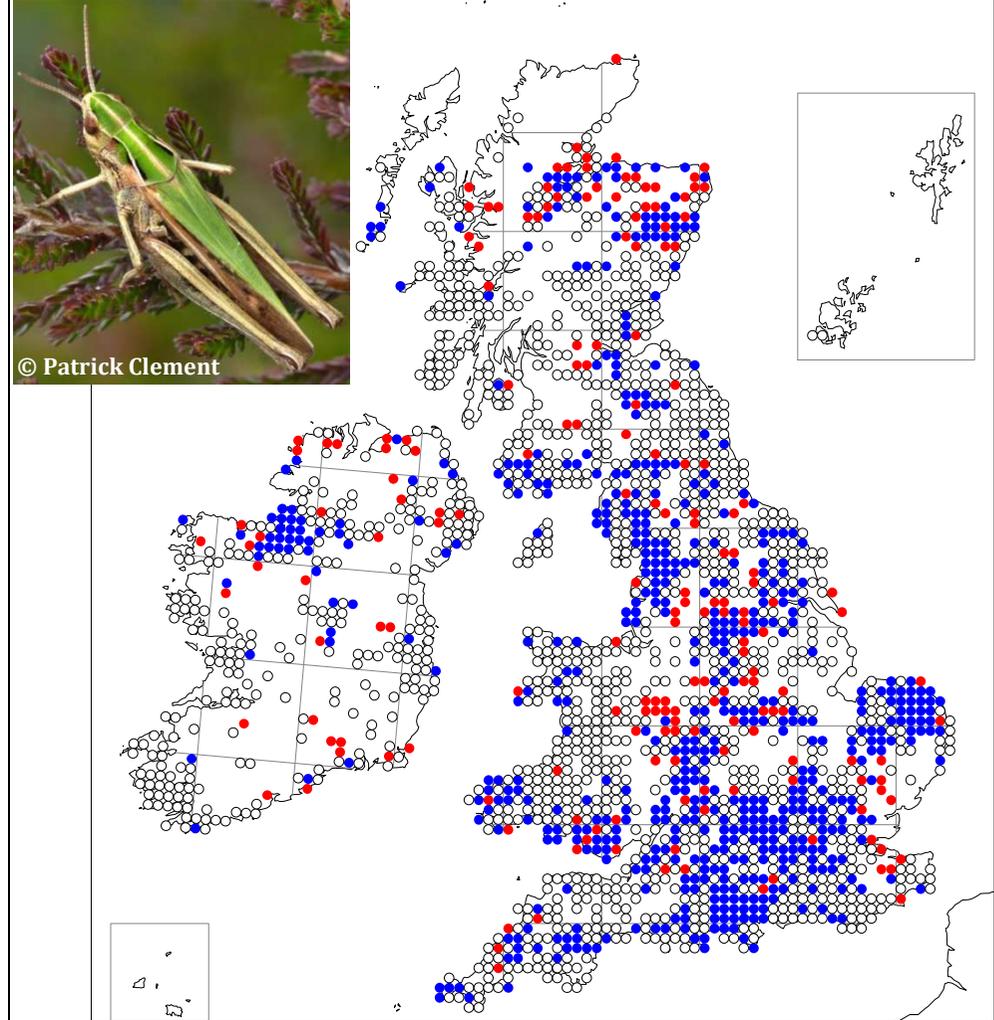
© Gary Palmer



Common Green Grasshopper, *Omocestus viridulus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Patrick Clement

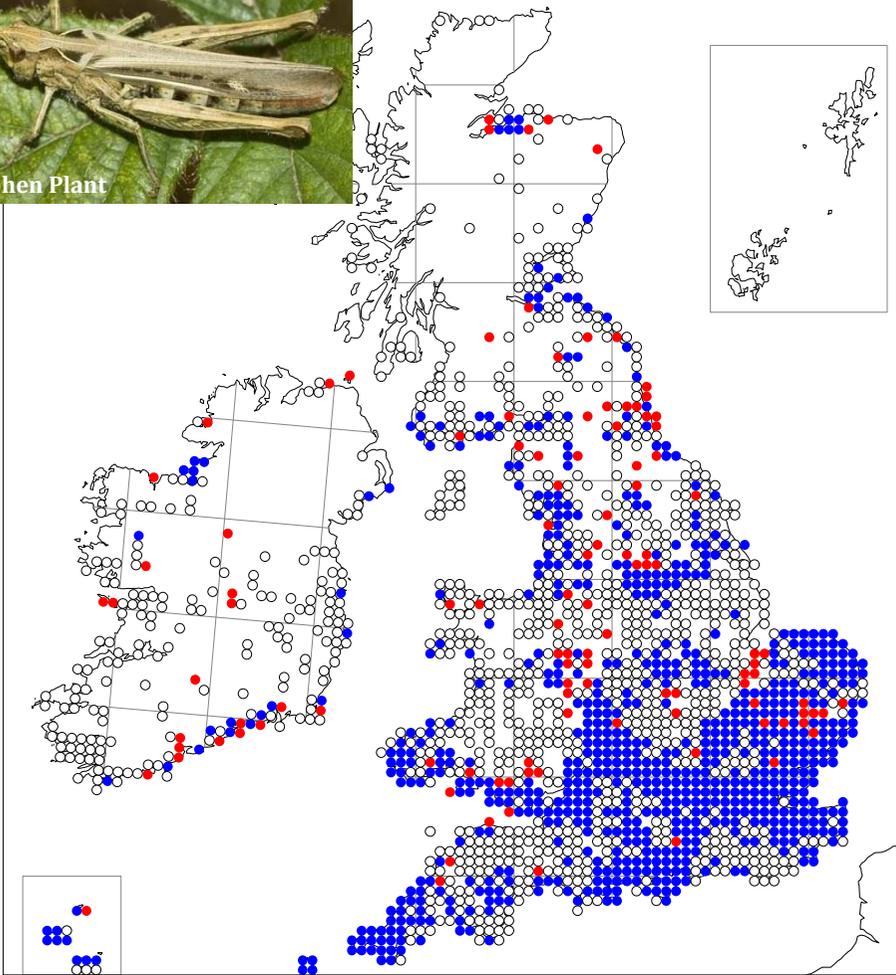


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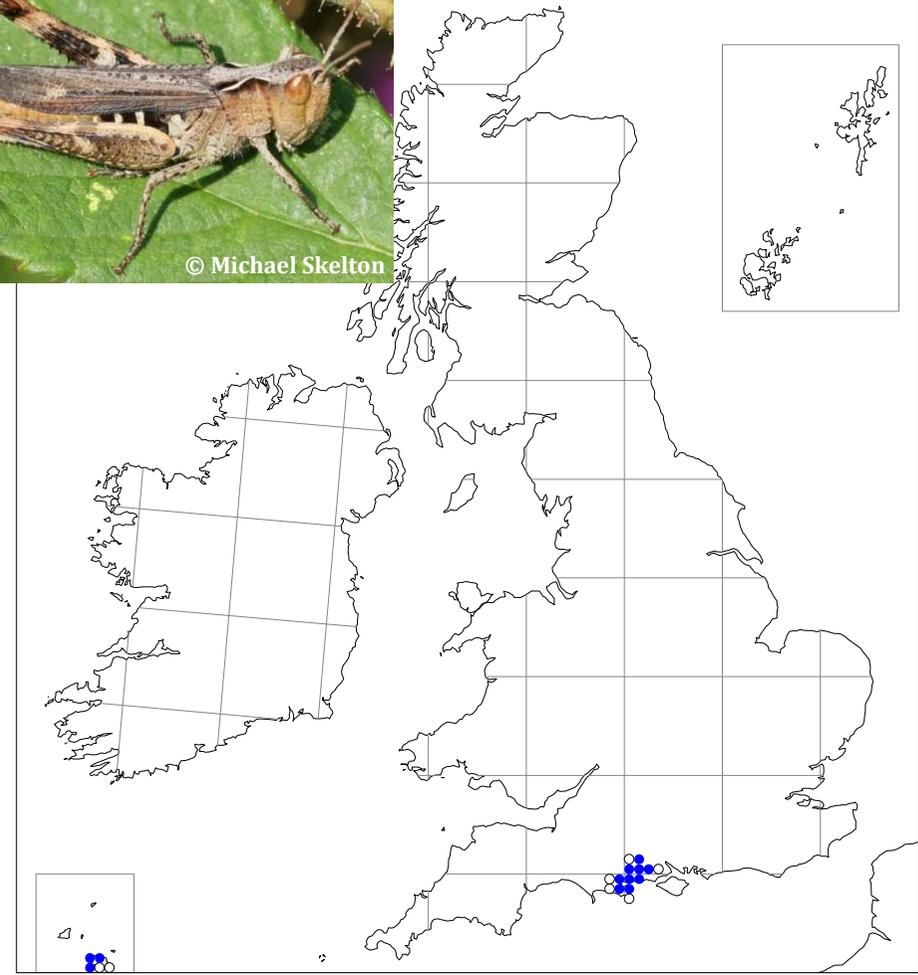
Field Grasshopper, *Chorthippus brunneus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Heath Grasshopper, *Chorthippus vagans*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



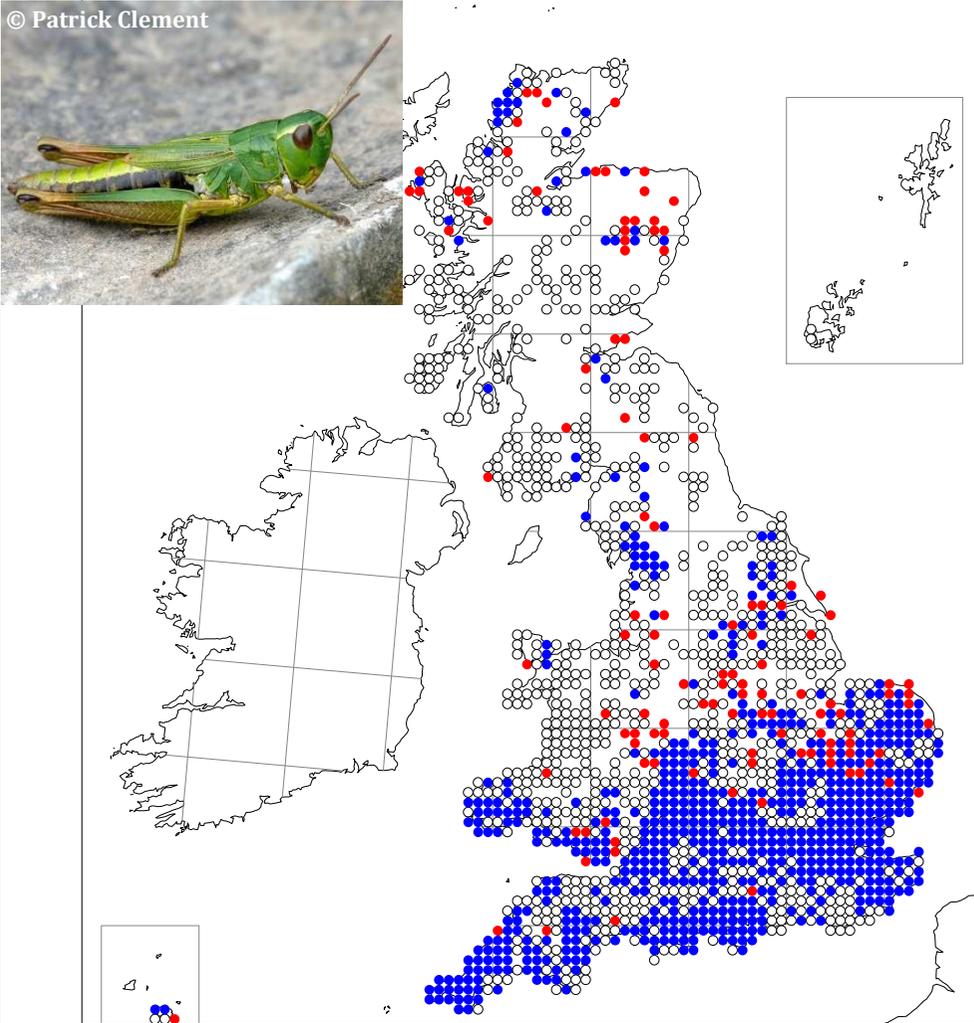
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Meadow Grasshopper, *Chorthippus parallelus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

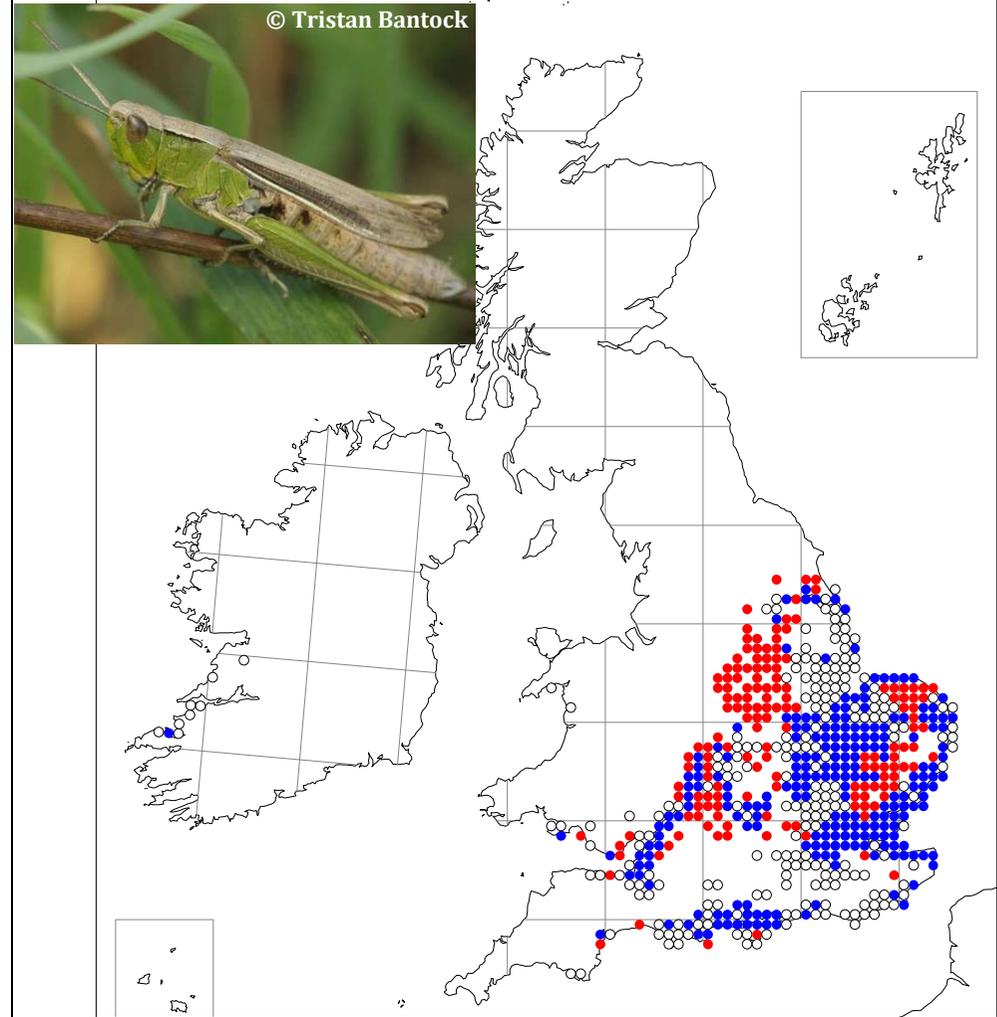
© Patrick Clement



Lesser Marsh Grasshopper, *Chorthippus albomarginatus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Tristan Bantock



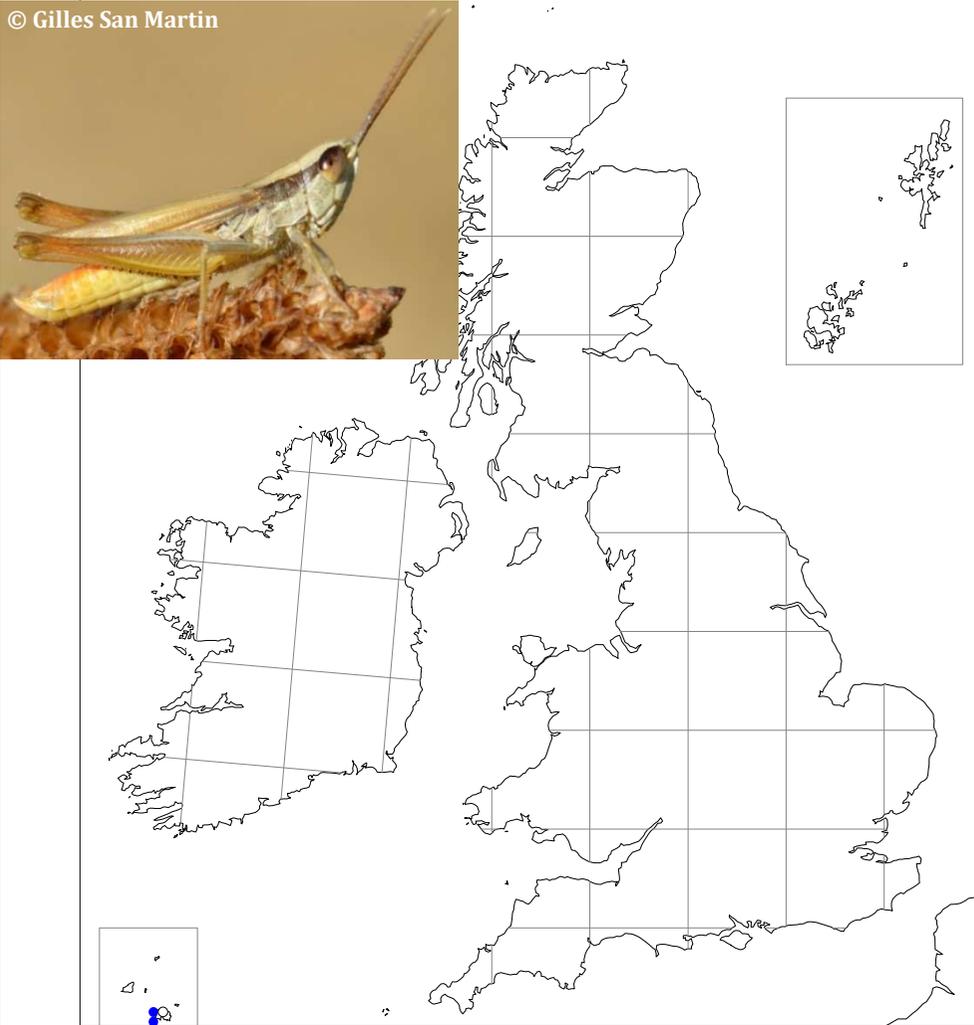
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Jersey Grasshopper, *Euchorthippus pulvinatus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

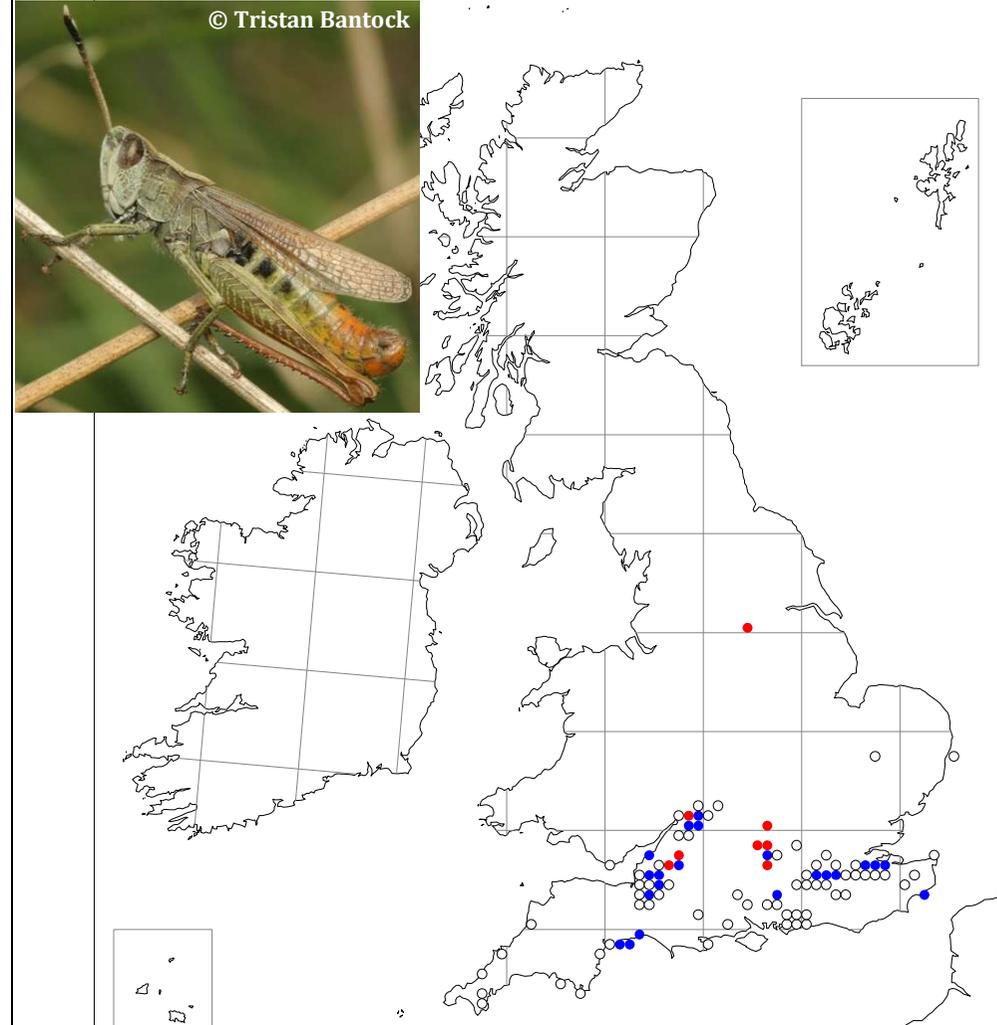
© Gilles San Martin



Rufous Grasshopper, *Gomphocerippus rufus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Tristan Bantock



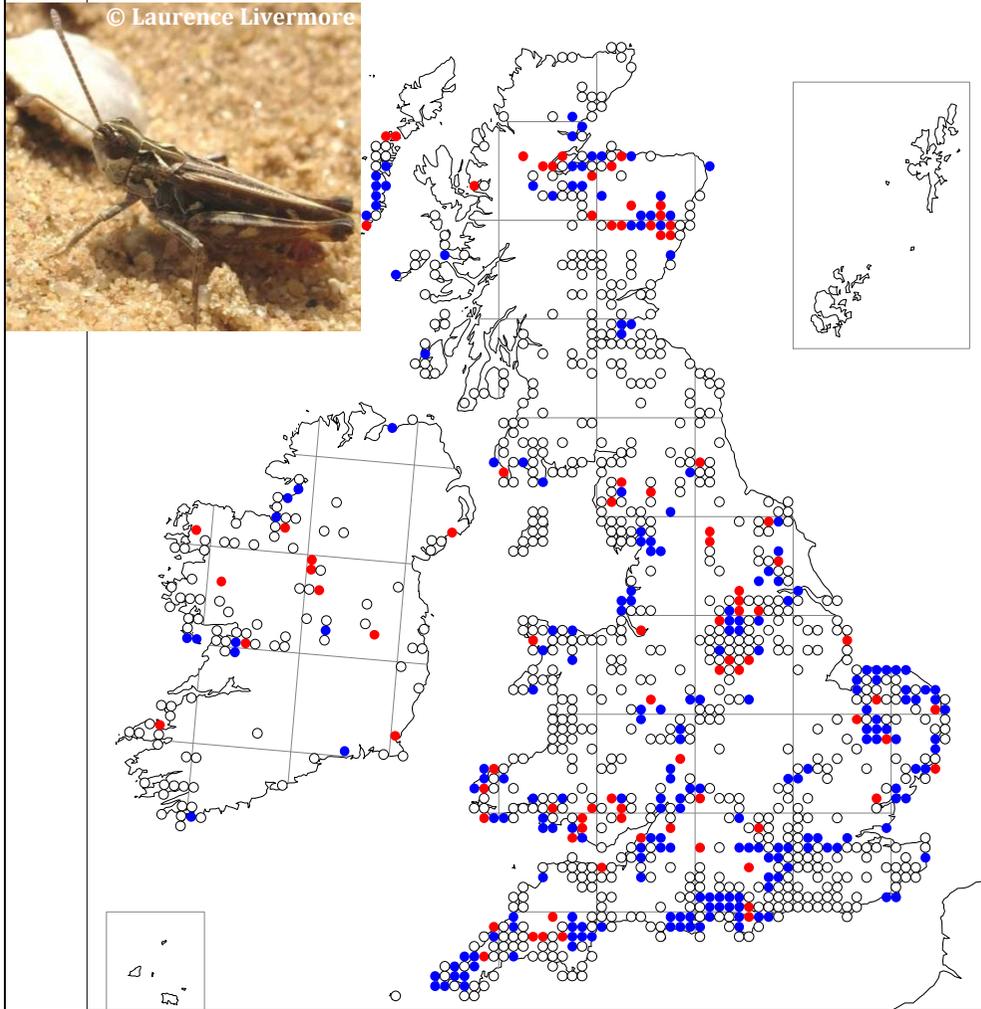
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Mottled Grasshopper, *Myrmeleotettix maculatus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

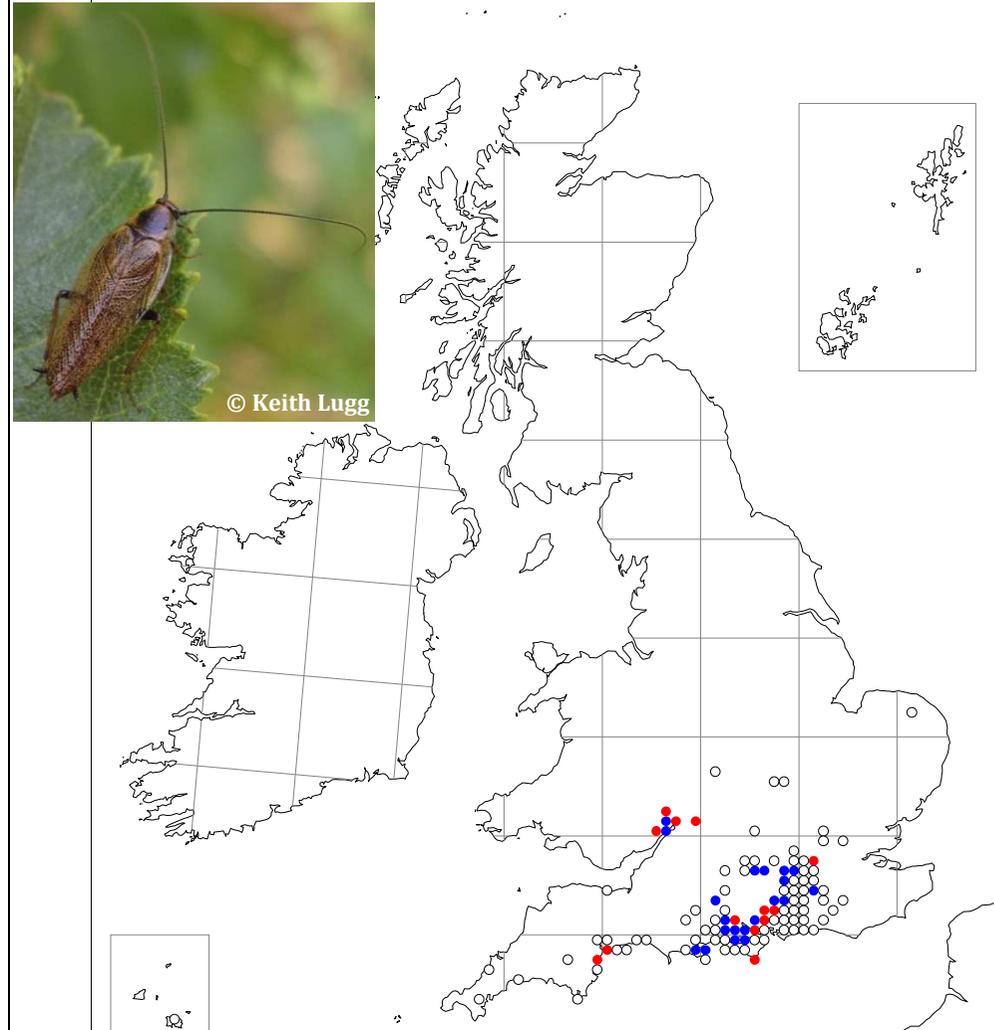
© Laurence Livermore



Dusky Cockroach, *Ectobius lapponicus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Keith Lugg

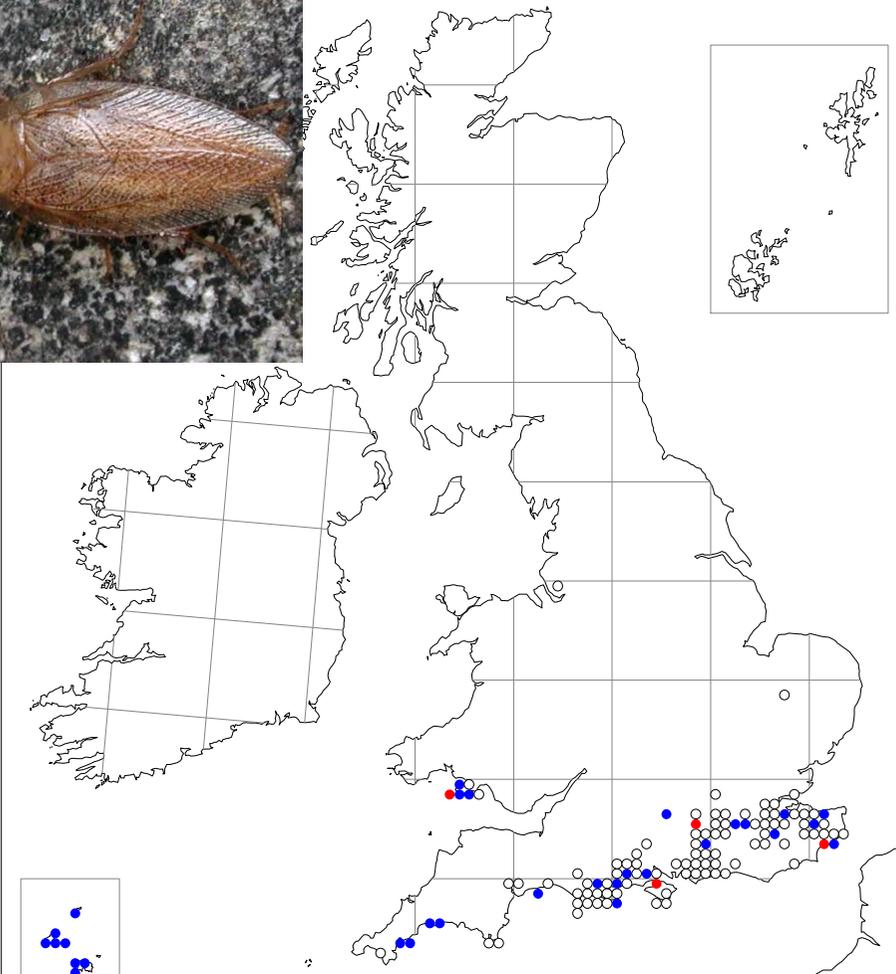


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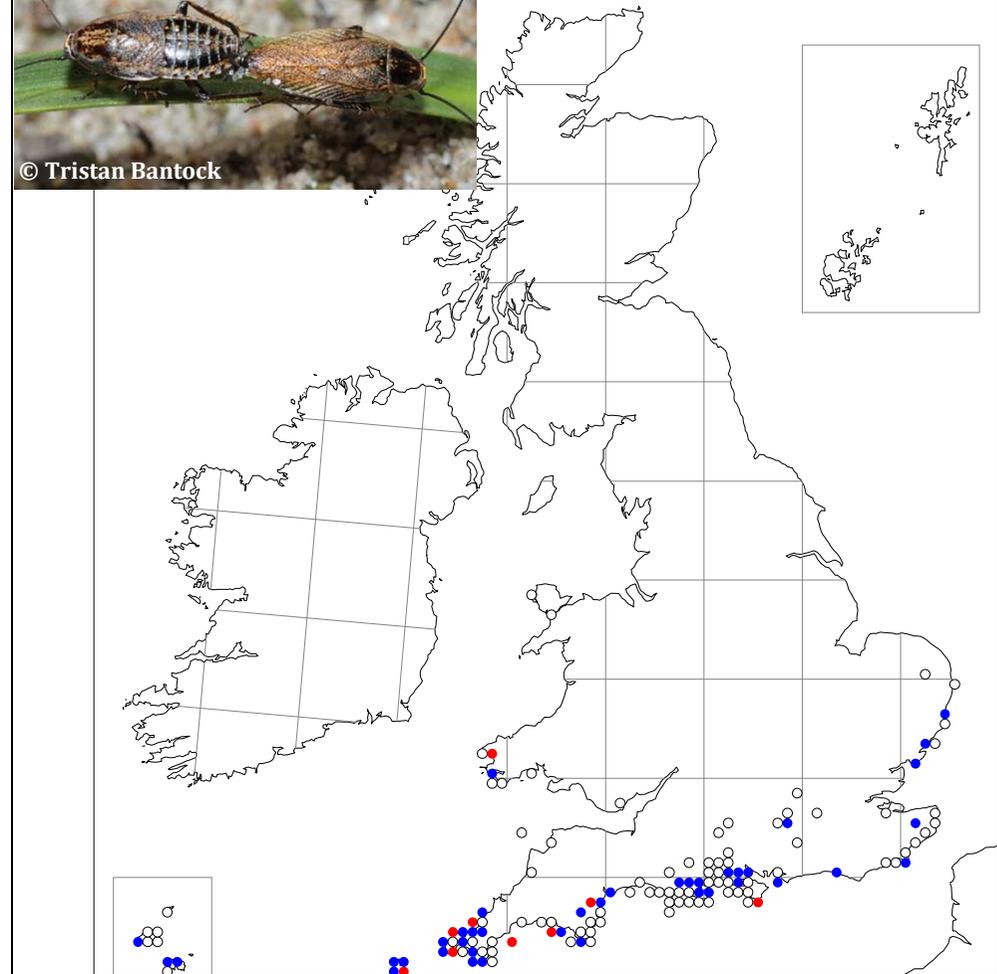
Tawny Cockroach, *Ectobius pallidus*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Lesser Cockroach, *Ectobius panzeri*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

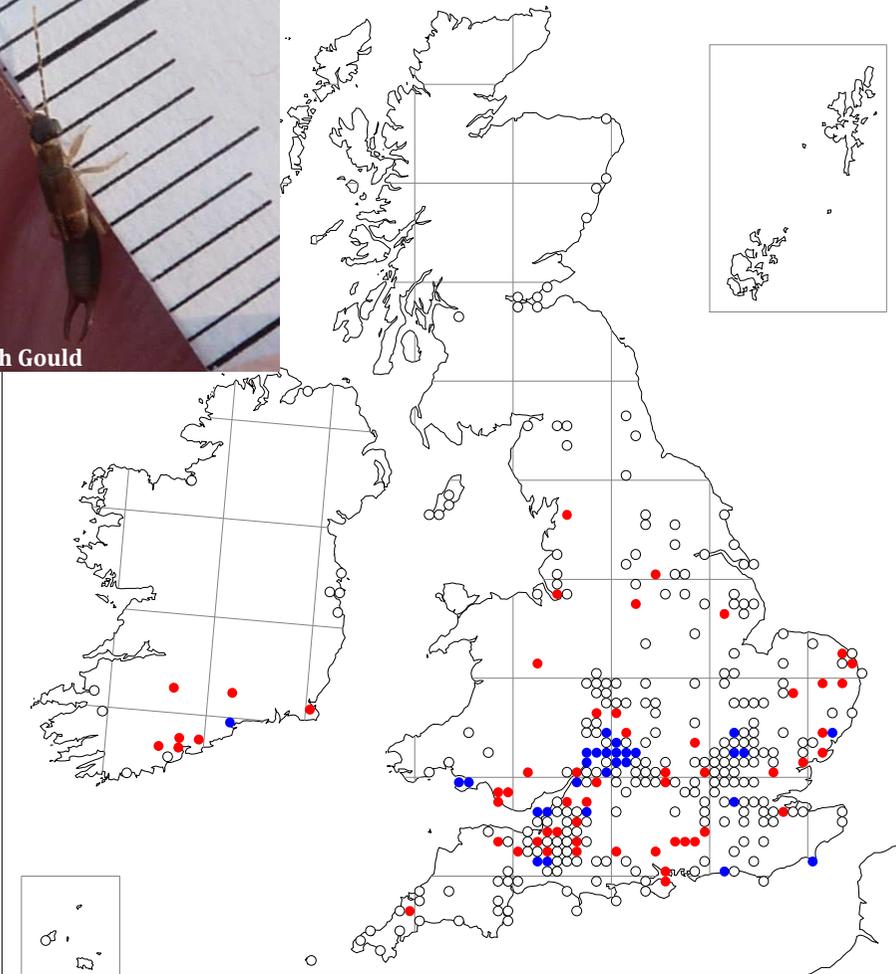


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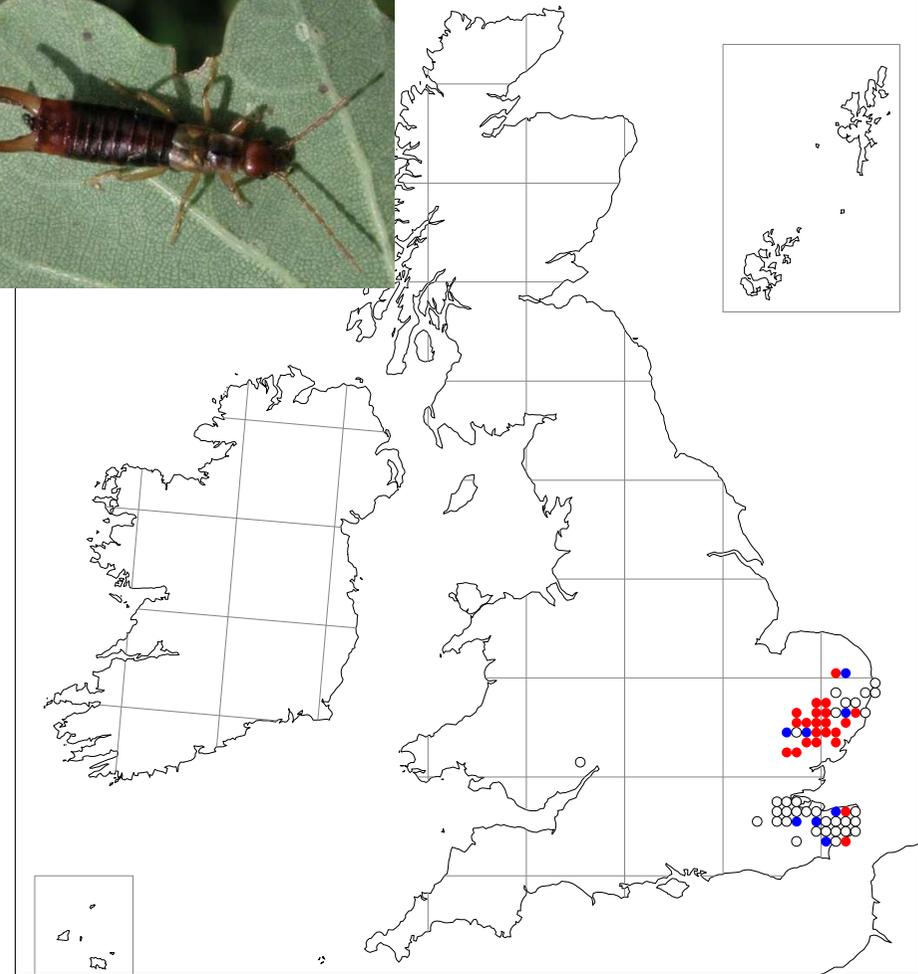
Lesser Earwig, *Labia minor*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Short-winged or Hop-garden Earwig, *Apterygida media*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



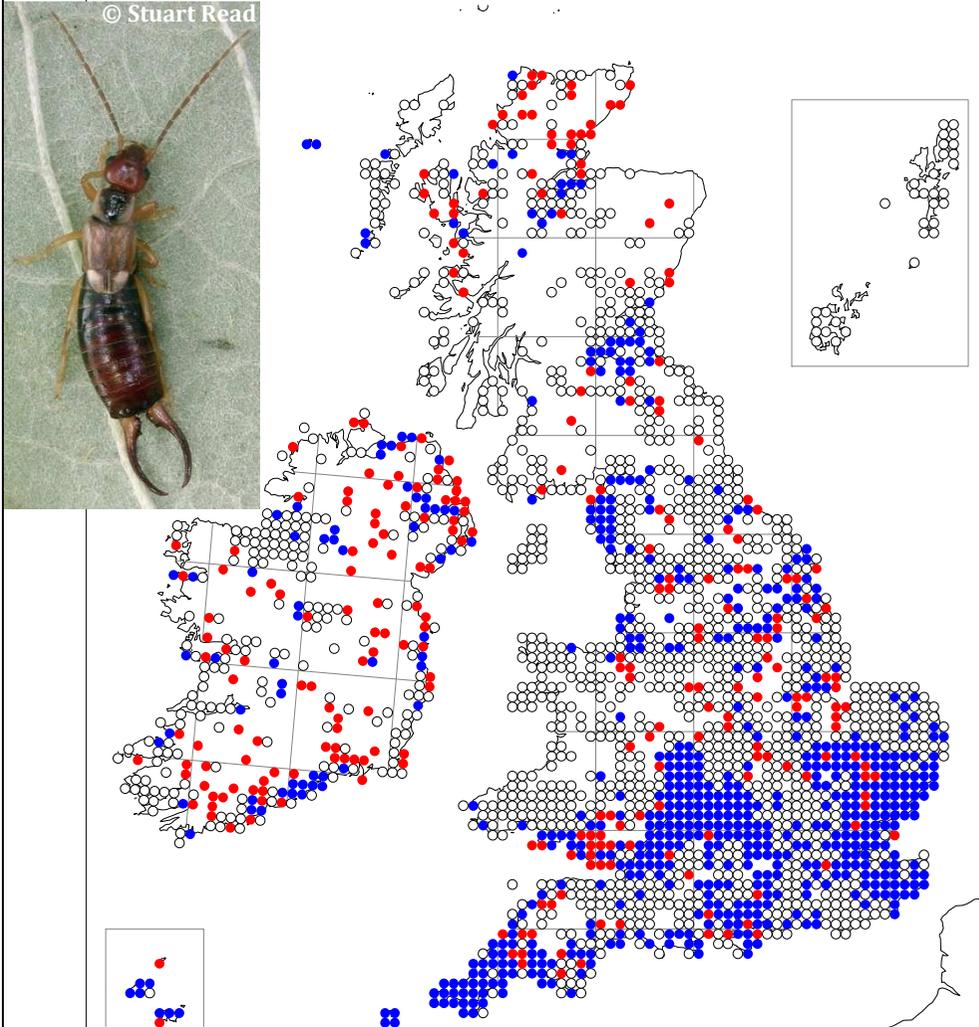
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Common Earwig, *Forficula auricularia*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

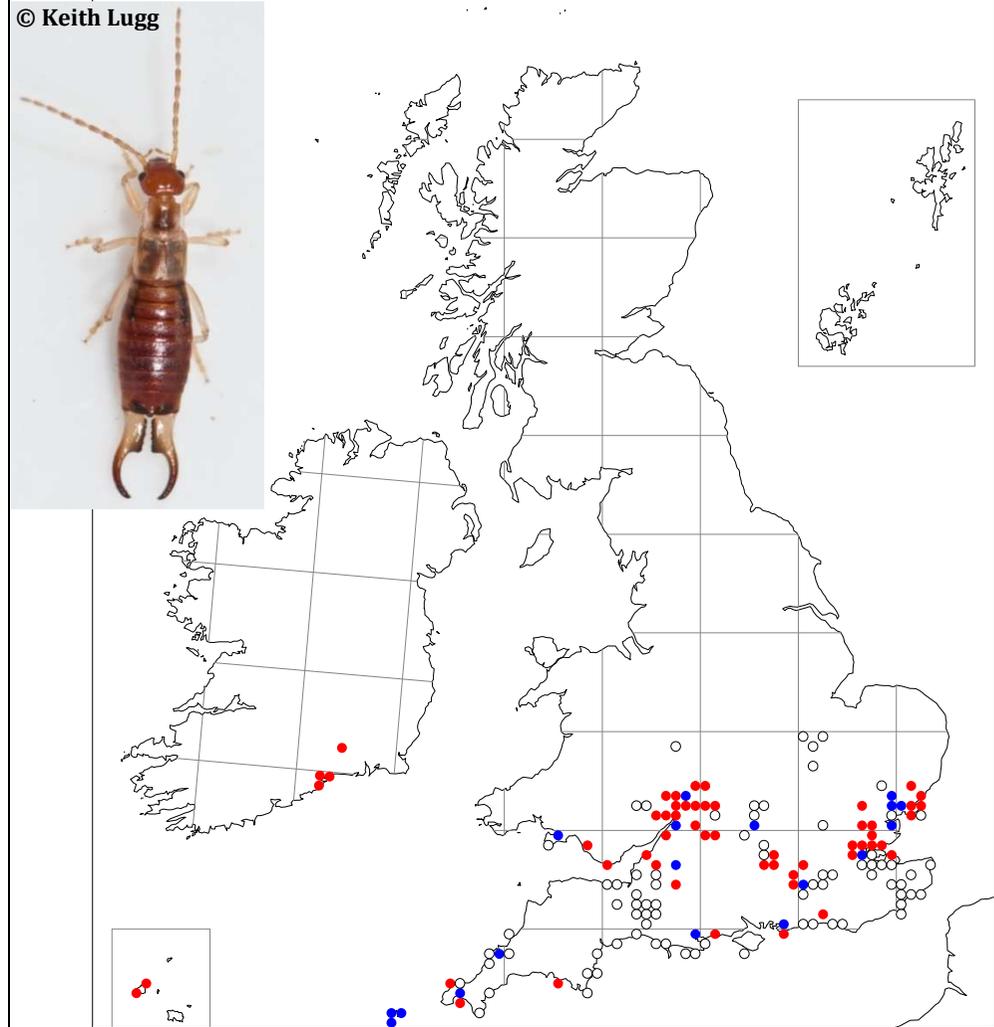
© Stuart Read



Lesne's Earwig, *Forficula lesnei*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

© Keith Lugg

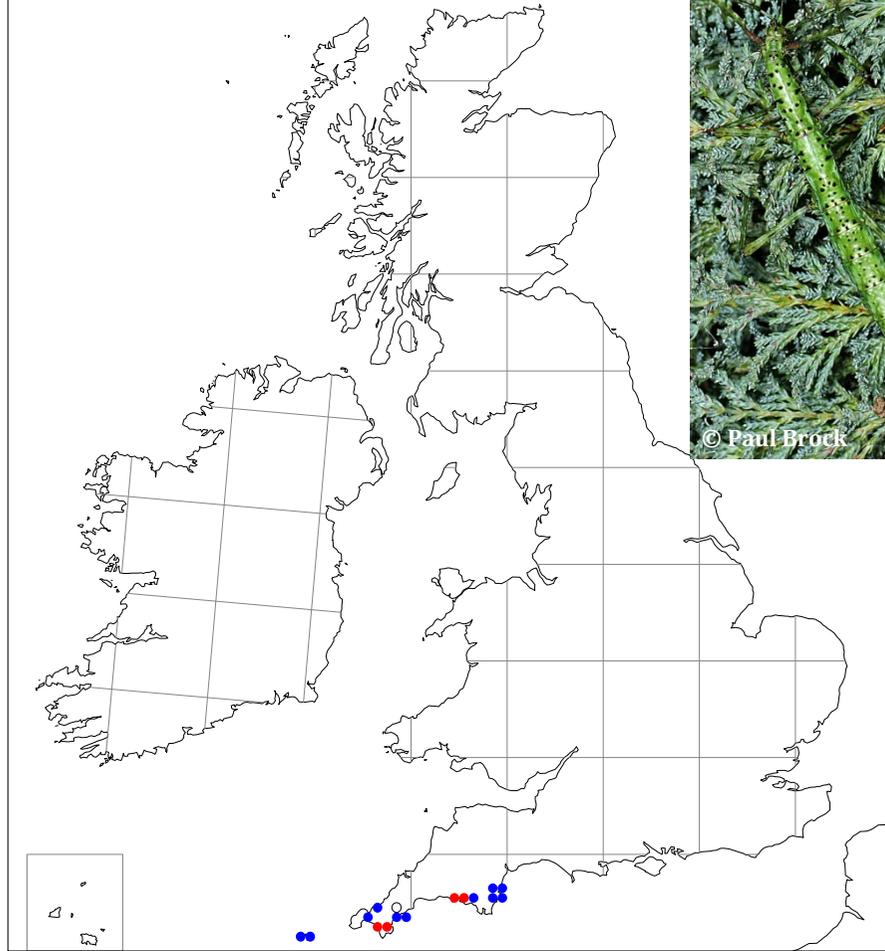


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Prickly Stick-insect, *Acanthoxyla geisovii*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"



Unarmed Stick-insect, *Acanthoxyla inermis*

- pre 1998 records only
- post 1998 records only / "colonisation?"
- pre and post 1998 records / "stable?"

