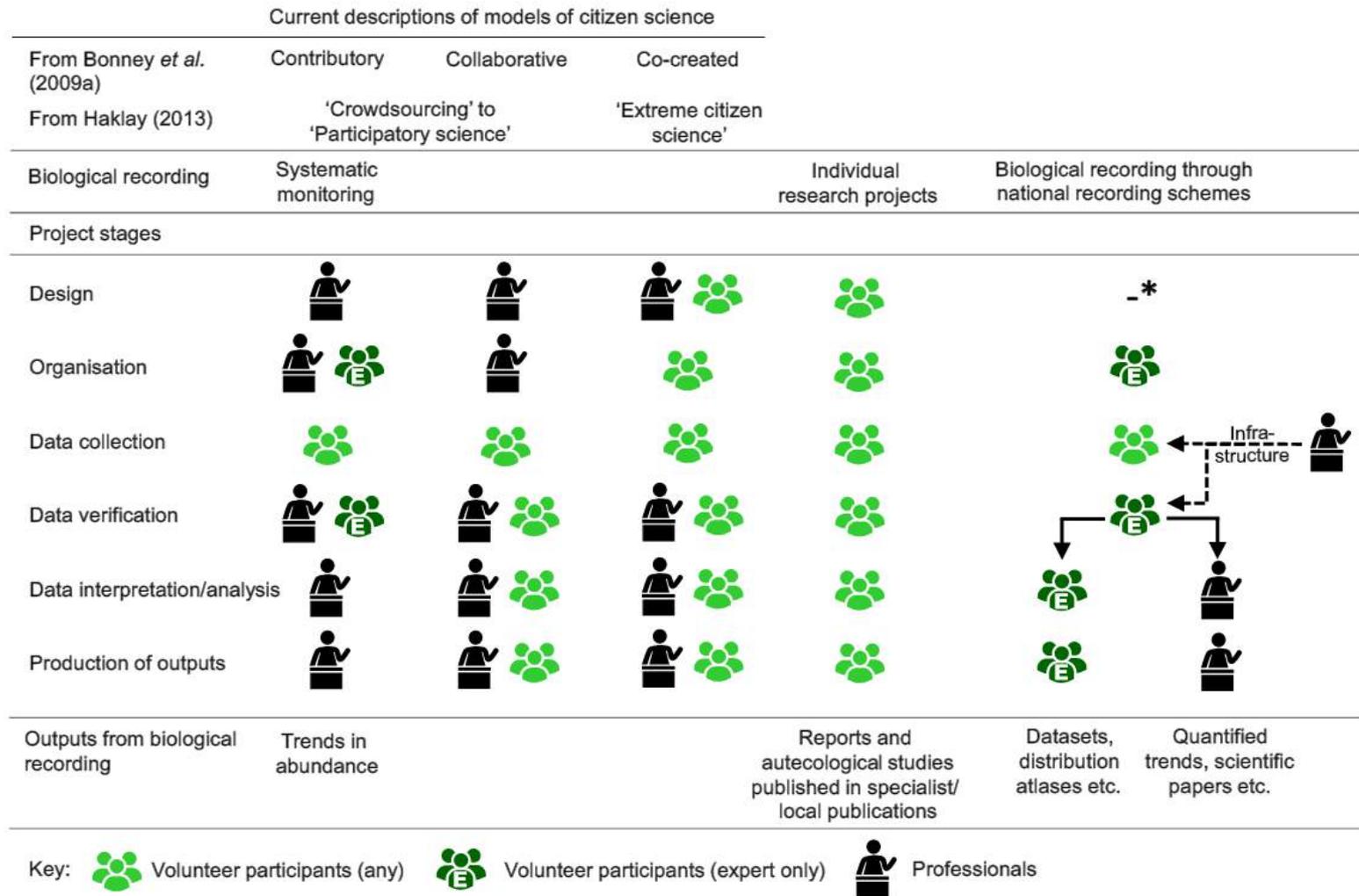


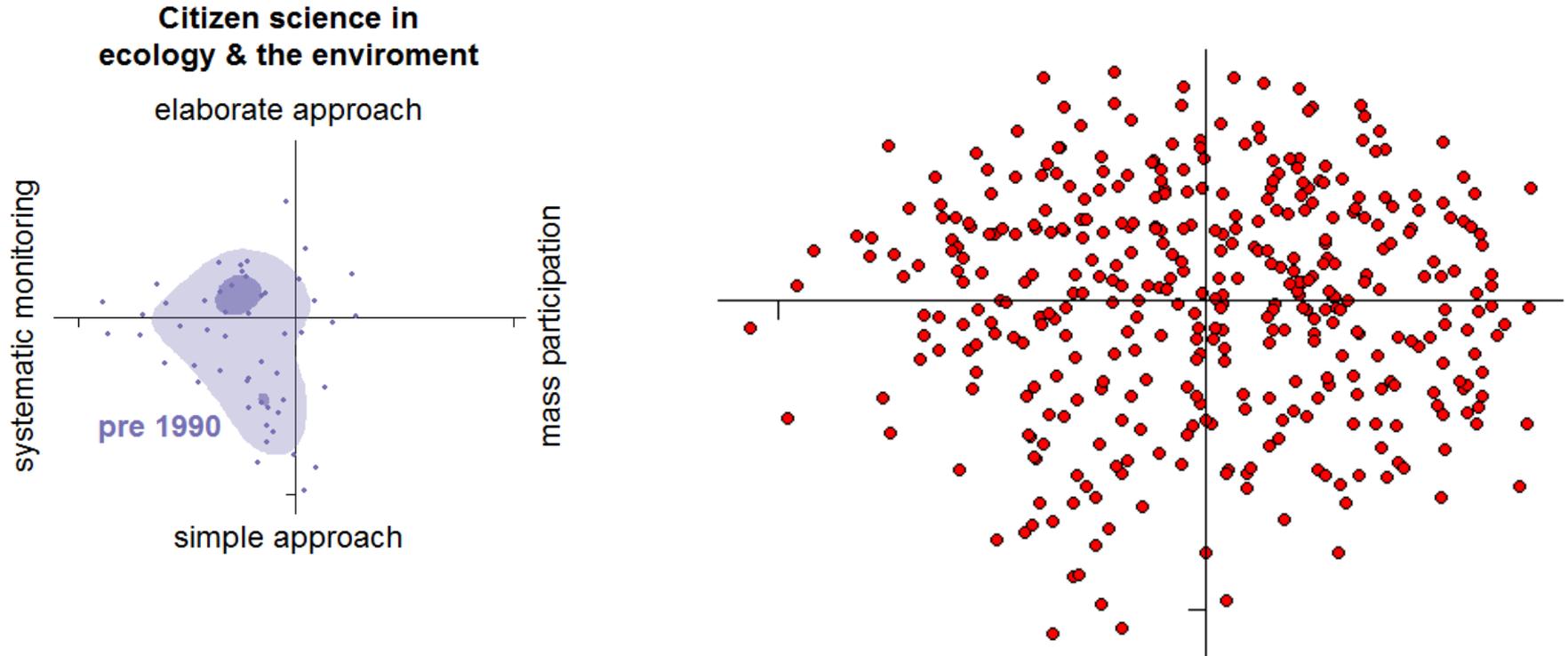
# Contribution of citizen science towards biodiversity monitoring

Helen Roy  
(and about 19 000 others)

# Defining citizen science...



# The landscape of citizen science



No clustering;  
there are no discrete 'types' of projects

# Wonderful life of citizen science

Biodiversity indicators →



Department for Environment  
Food & Rural Affairs

Legislative monitoring →



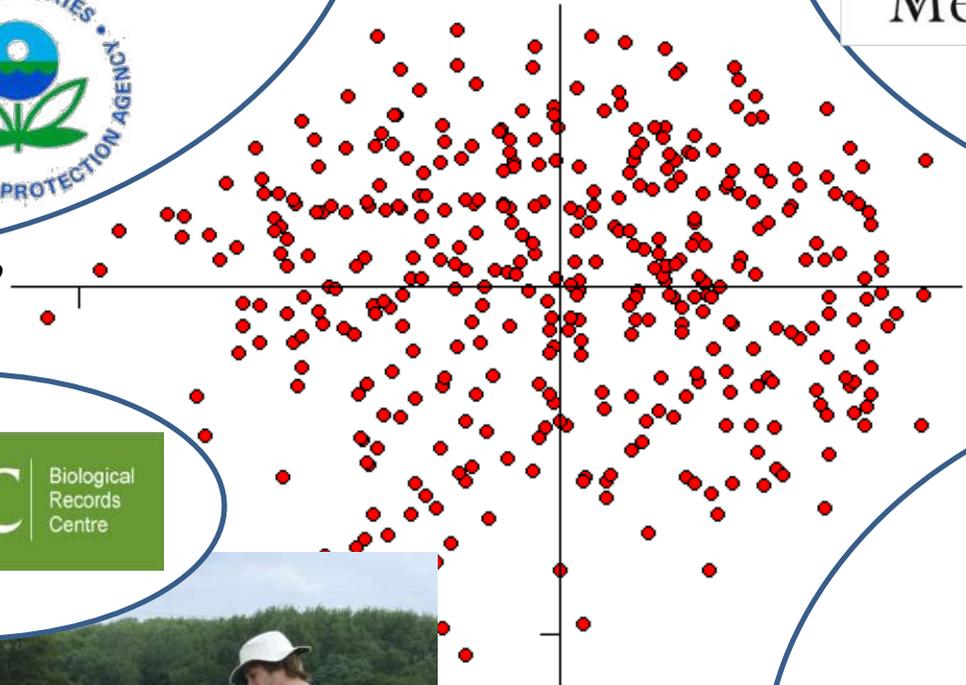
**'Elaborate'**

Hypothesis-led science

EVolution  
MegaLab



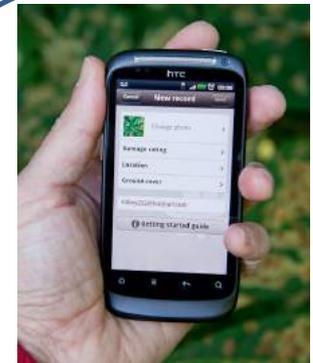
**'Scientific sampling'**



**'Mass participation'**



**'Elemental'**



# Biological Records Centre



Contribute  
butterfly  
records with  
iRecord

## Key themes

[Recording Schemes](#)

[Atlases](#)

[Datasets](#)

[Red Listing and Indicators](#)



amphibian and reptile  
conservation



A booklet reviewing the first 50 years of BRC can be download [here](#).

BRC is supported by the Joint Nature Conservation Committee and the Centre for Ecology & Hydrology within the Natural Environment Research Council.

The work of BRC is a major component of the National Biodiversity Network.



[mobile app](#)



[Improving Plant Monitoring](#)



[more](#)

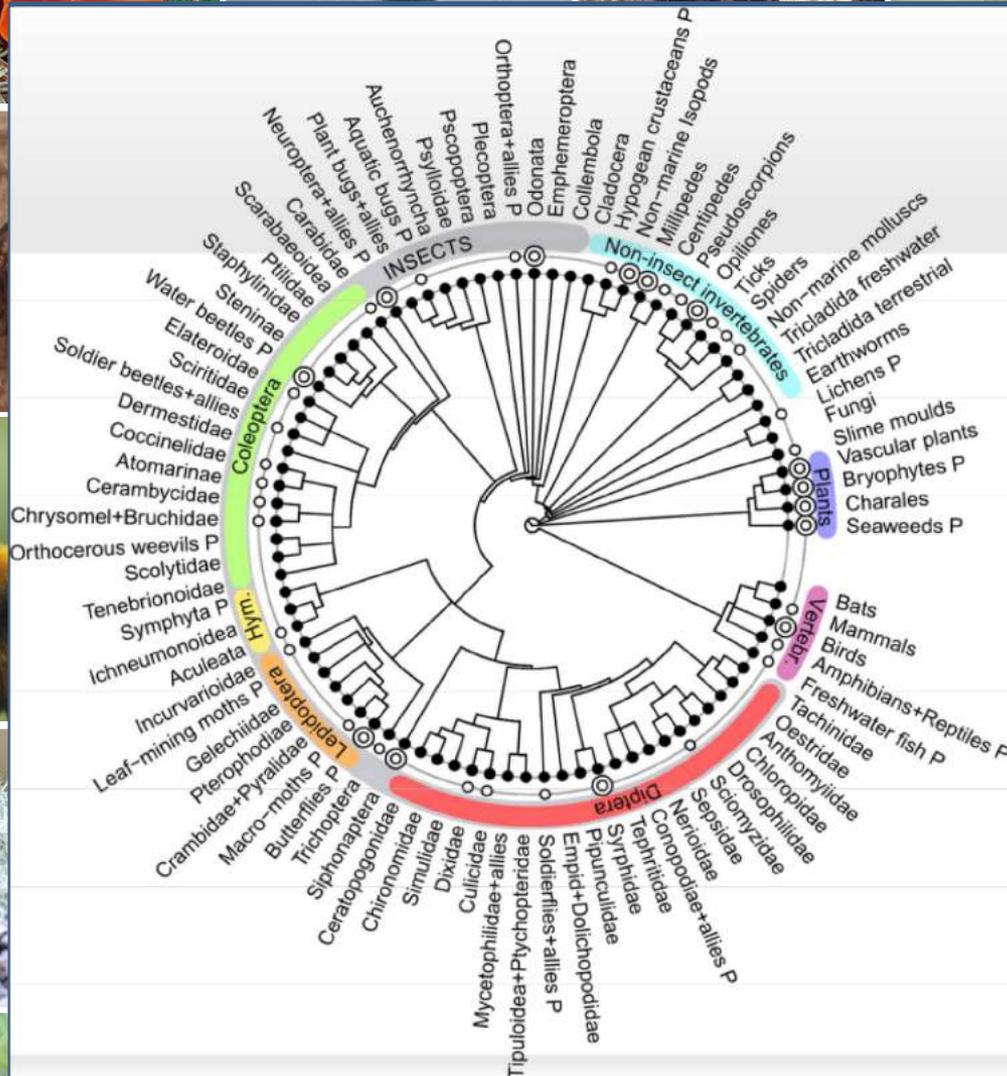
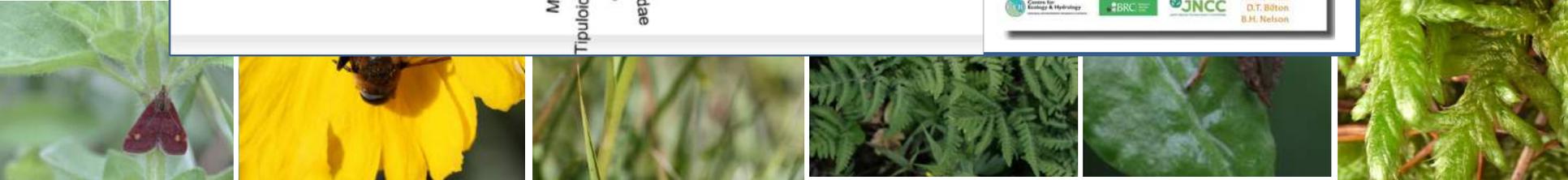
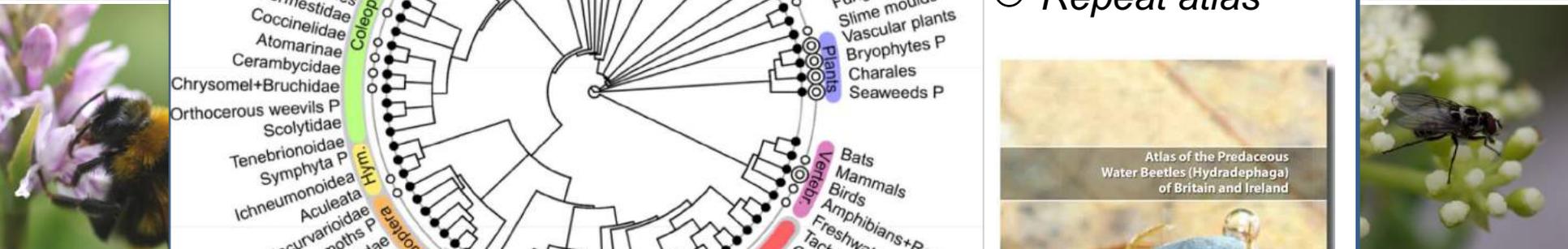
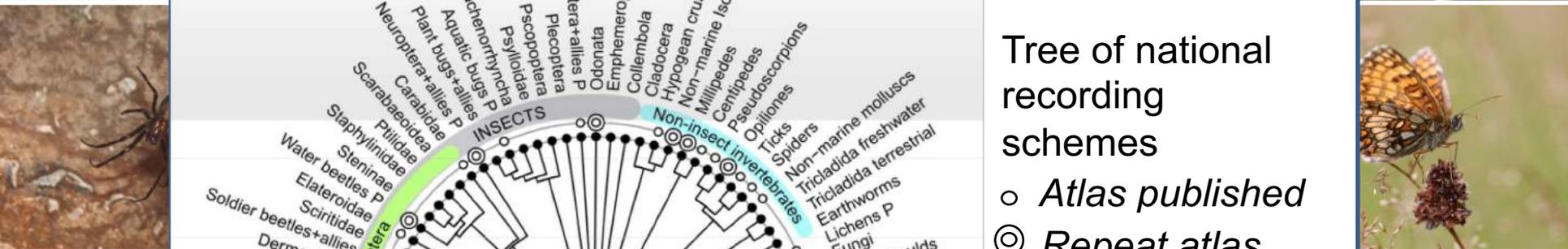
[Citizen Science](#)

[History of Recording](#)

[Developing BRC](#)

[Partnerships](#)

[Follow @BRC](#)



Tree of national recording schemes

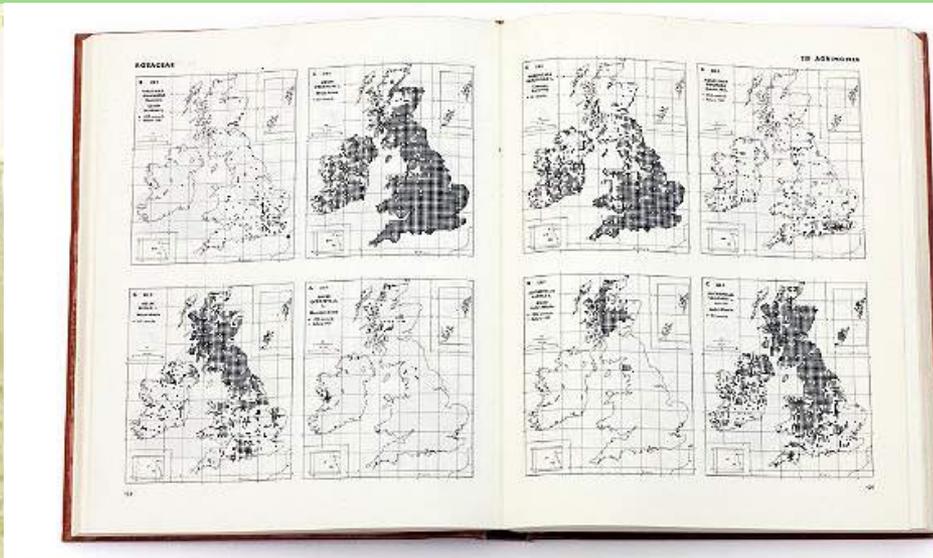
- o Atlas published
- o Repeat atlas

Atlas of the Predaceous Water Beetles (Hydradephaga) of Britain and Ireland

Centres for Ecology & Hydrology | BRC | JNCC

G.N. Foster  
D.T. Bilton  
B.H. Nelson

# Celebrating centuries of recording wildlife

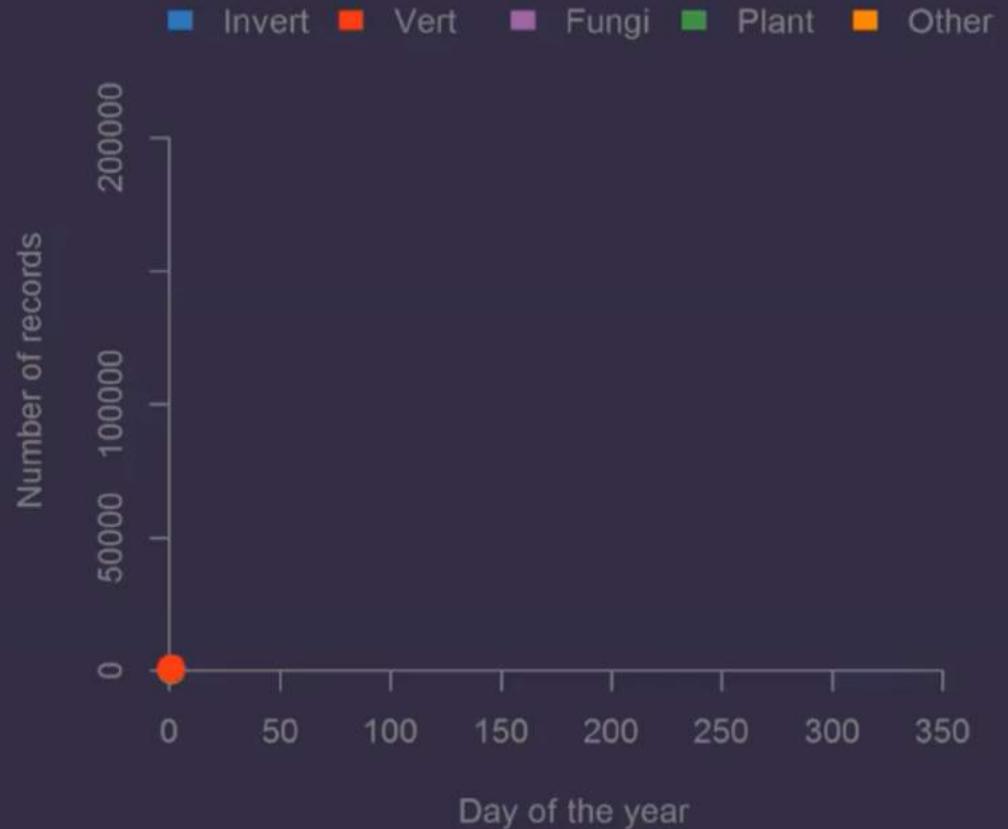




Every record counts - download a FREE app:  
<https://www.ceh.ac.uk/citizen-science-apps>

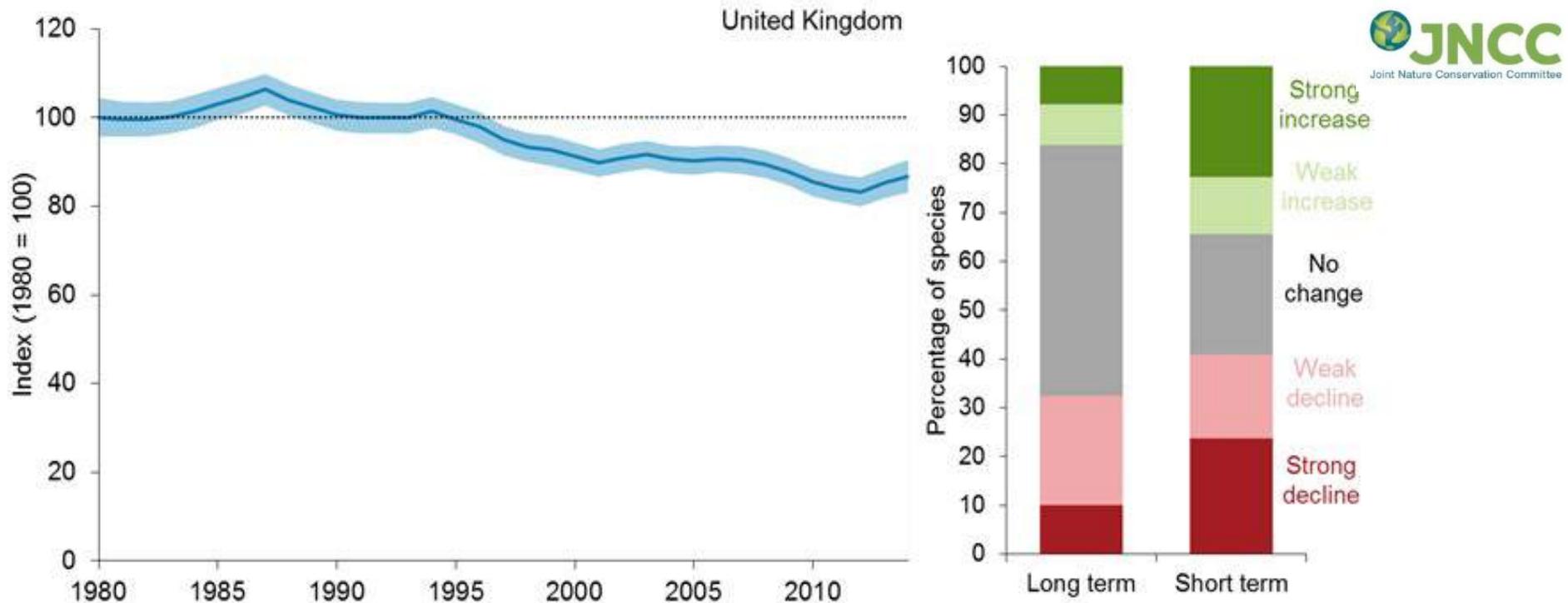
# Celebrating one year of recording wildlife

January



[www.brc.ac.uk/iRecord](http://www.brc.ac.uk/iRecord)

# Informing policy...



Average relative change in distribution of **389 species of wild bee and hoverfly** using 1km occurrence records

- Does the Indicator reflect changes in **abundance** of different groups?
- Can we improve these trend estimates with structured surveys?

# ...underpinning strategy



## Pollinator Monitoring Scheme: Flower-Insect Timed Count

Many wild and cultivated plants depend on insects to pollinate their flowers, with successful pollination leading to successful seed or fruit production. There are concerns that numbers of pollinating insects such as bees and flies may be declining, but we need more data to be able to track any changes in abundance across the country. The Flower-Insect Timed Count (FIT Count) is designed to collect new data on the numbers of flower-visiting insects, as part of a wider set of studies for a national [Pollinator Monitoring Scheme](#) (PoMS).



UK Research  
and Innovation



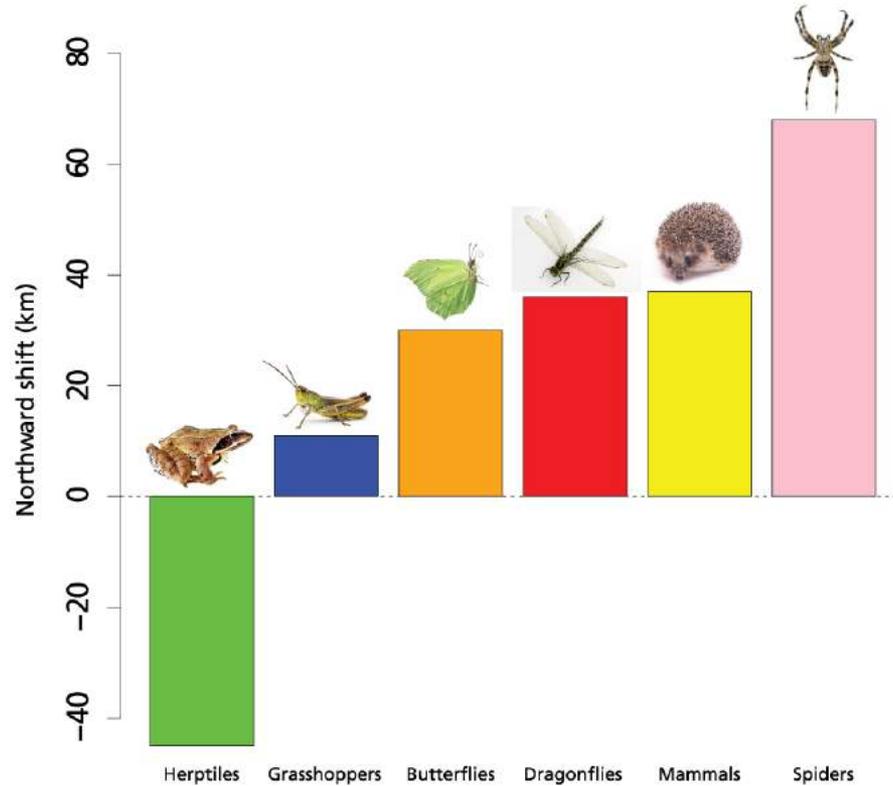
# Non-native species surveillance



# Informing conservation...



# Climate change and wildlife...



# New discoveries on your doorstep...

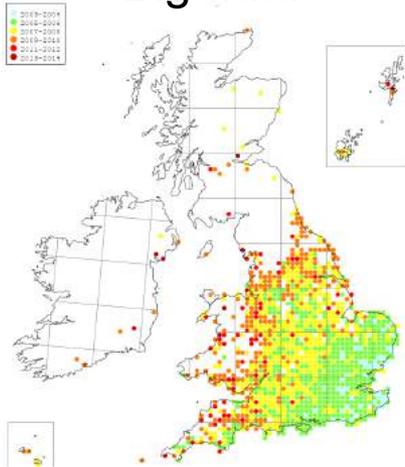


*Scymnus interruptus*

First county record for Oxfordshire  
(May 2013)

# The joy of wildlife recording

## Big data



## Engaging



## Inspiring



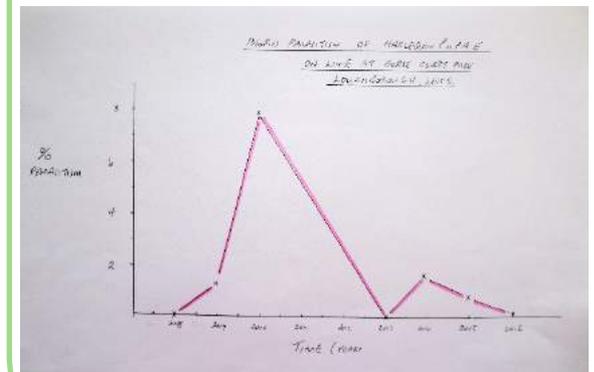
## Fun and creative



## Captivating



## Collaborative

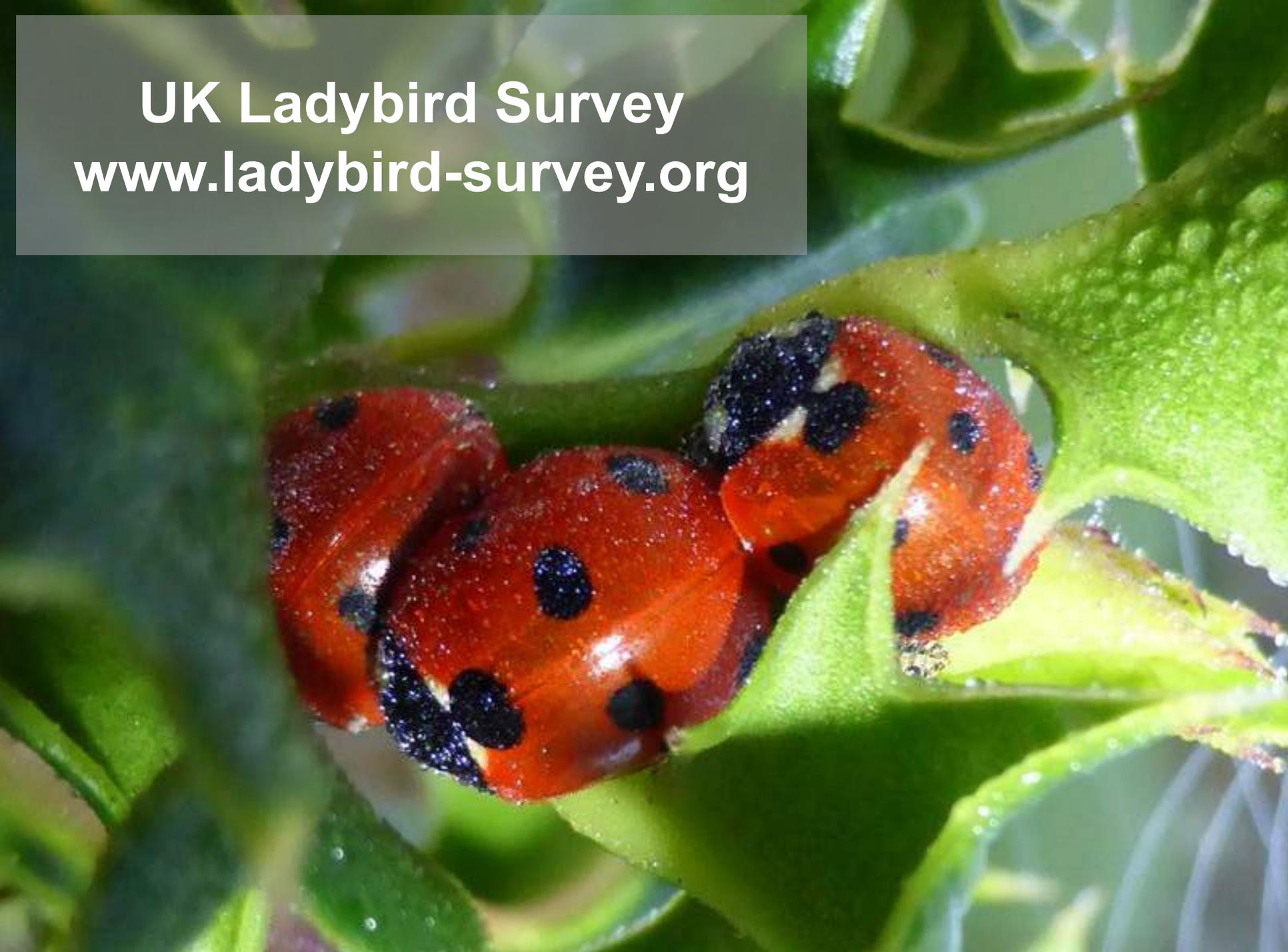


# ...a ladybird perspective



Jennifer Lewington

**UK Ladybird Survey**  
**[www.ladybird-survey.org](http://www.ladybird-survey.org)**



You Retweeted

St Marys CIW School @StMarysCIW · Jun 20

Replying to @UKLadybirds @Natures\_Voice @GwentWildlife

What do ladybirds drink?



# Sharing excitement @UKLadybirds



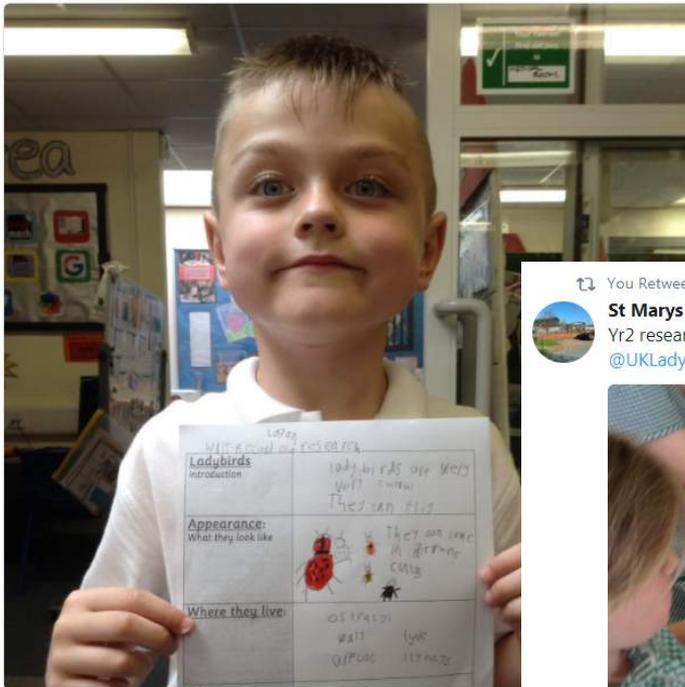
1 1 0 0

You Retweeted

St Marys CIW School @StMarysCIW · Jun 20

Replying to @UKLadybirds

What are ladybirds favourite things to eat?



2 1 0 0

You Retweeted

St Marys CIW School @StMarysCIW · Jun 20

Yr2 researching Ladybirds ready to write a report & find them outside @UKLadybirds @Natures\_Voice @GwentWildlife



1 2 3 0

...everywhere



# Contributing records UK Ladybird Survey

## iRecord

The screenshot shows the iRecord website's 'Enter ladybird records' page. It features a search bar, a 'Send a Record!' button, and a table for entering data. The table has columns for Species, Colour form, Life stage, Quantity, and Comments. Below the table are links for 'Help', 'Terms & Conditions', and 'Powered by iRecord'.

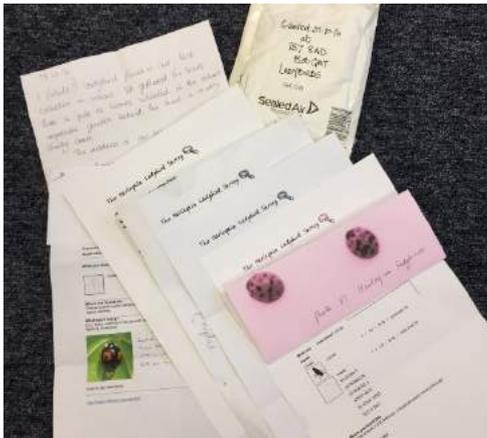
## Website

The screenshot shows the 'Recording' section of the UK Ladybird Survey website. It includes a 'Send a Record!' button and text explaining the online recording form. A sidebar on the left lists various sections like 'UK Ladybirds', 'BBC Breathing Places', and 'Recording Form'. The main content area describes the online recording form and provides instructions for users.

## Smartphone app



## Post



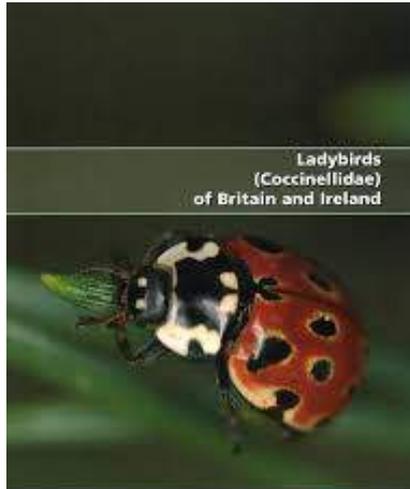
## Spreadsheets

The screenshot shows a spreadsheet with columns for 'Date', 'Location', 'Species', 'Quantity', 'Life stage', 'Sex', 'Colour form', 'Comments', and 'Recorded by'. The data includes various ladybird species and their sightings across different locations and dates.

## E-mails

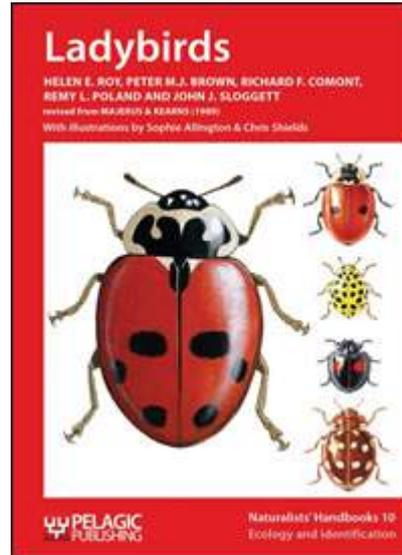
**From:** John Powell  
**Sent:** 26 October 2016 13:14  
**To:** ladybird-survey  
**Subject:** Sighting St. Annes on Sea, FY8. 1 adult in my garden on 29 June 2014. Sitting on the leaf of a potted plant as shown on the picture attached. Kindest regards, John

# Atlas, field guides and resources



Ladybirds  
(Coccinellidae)  
of Britain and Ireland

Helen Roy, Peter Brown, Richard F. Comont, Remy L. Poland, John J. Sloggett  
 Edited by Helen Roy, Peter Brown, Richard F. Comont, Remy L. Poland



## Ladybirds

HELEN E. ROY, PETER M.J. BROWN, RICHARD F. COMONT,  
REMY L. POLAND AND JOHN J. SLOGGETT  
 revised from MAJERIN & KEARNS (1999)  
 With illustrations by Sophie Allington & Chris Shields



WILEY-BLACKWELL PUBLISHING  
 Naturalists' Handbooks 10  
 Ecology and Identification

**UK Ladybird Survey**

**Seen & Ladybird Record!**

**Ladybird species in the UK**

There have been 3500 species of coccinellid described worldwide but until recently only 43 were considered as resident in Britain.

The herbivorous Bryony ladybird, *Epilachna argus*, and the small inconspicuous brown ladybird, *Rhyzobius chrysomeloides*, are recent additions but neither have attracted as much attention as the Harlequin ladybird, *H. axyridis*, first encountered in 2004.

Of the 46 ladybird species now found in Britain only 26 are readily recognisable as ladybirds and these are the focus of the Ladybird Survey.

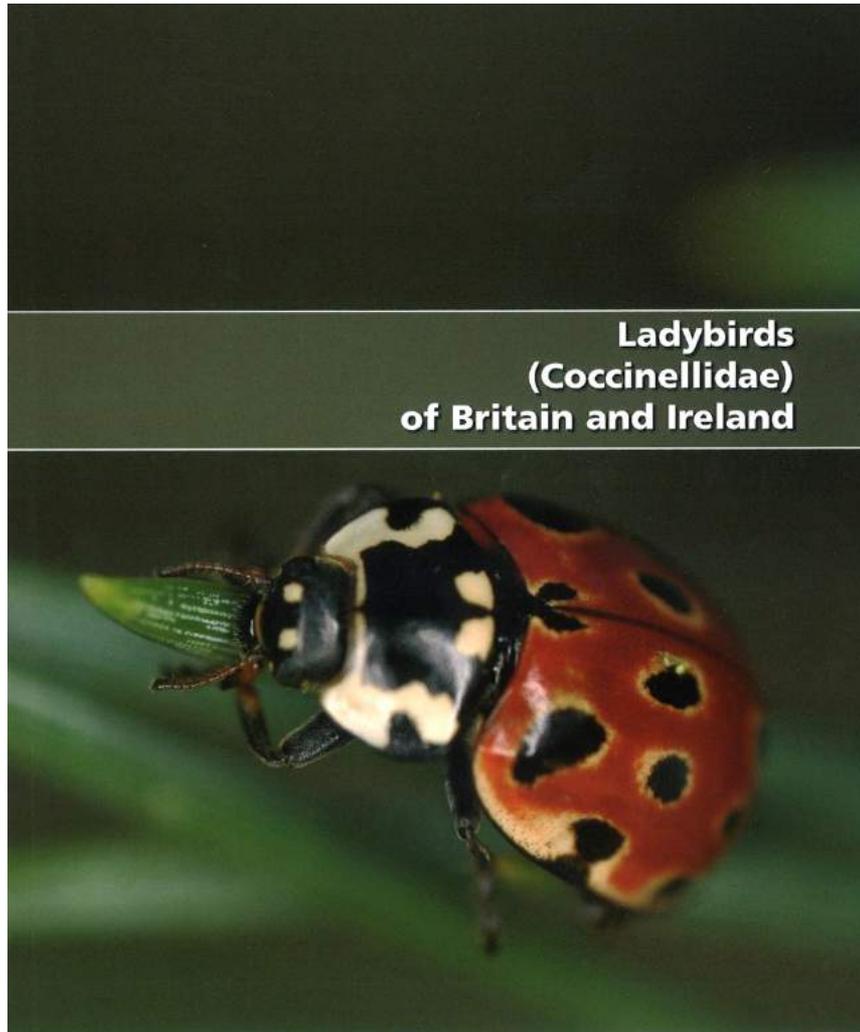
A ladybird identification sheet (163Kb) and a ladybird larvae identification sheet (290Kb) are available in PDF format.

Thanks to Jeroen Mentens for supplying many excellent photos.

Sub-family	Species	Common name
Epilachninae	<i>Herosepachna argus</i> (Geoffroy in Fourcroy)	Bryony ladybird
Epilachninae	<i>Subcoccinella 24-punctata</i> (L.)	24-spot ladybird
Coccinellinae	<i>Adalia 10-punctata</i> (L.)	10-spot ladybird
Coccinellinae	<i>Adalia 2-punctata</i> (L.)	2-spot ladybird
Coccinellinae	<i>Adonia variegata</i> (Goesse)	Adonis ladybird
Coccinellinae	<i>Anatis oculata</i> (L.)	Eyed ladybird
Coccinellinae	<i>Anisosticta 19-punctata</i> (L.)	Water ladybird
Coccinellinae	<i>Aphidecta obliterata</i> (L.)	Larch ladybird
Coccinellinae	<i>Calvis 14-guttata</i> (L.)	Cream-spot ladybird
Coccinellinae	<i>Coccinella 11-punctata</i> L.	11-spot ladybird
Coccinellinae	<i>Coccinella 5-punctata</i> L.	5-spot ladybird
Coccinellinae	<i>Coccinella 7-punctata</i> L.	7-spot ladybird
Coccinellinae	<i>Coccinella haerolyphica</i> L.	Harlequin ladybird
Coccinellinae	<i>Coccinella magnifica</i> Redtenbacher	Scarce 7-spot ladybird
Coccinellinae	<i>Halysia 16-guttata</i> (L.)	Orange ladybird
Coccinellinae	<i>Harmonia 4-punctata</i> Pontoppidan	Cream-streaked ladybird
Coccinellinae	<i>Harmonia axyridis</i> (Pallas)	Harlequin ladybird
Coccinellinae	<i>Hippodamia 13-punctata</i> (L.)	13-spot ladybird
Coccinellinae	<i>Myrrha 16-guttata</i> (L.)	16-spot ladybird



# From ladybird atlas to field guide



 Bloomsbury Wildlife Guides

## Field Guide to the **Ladybirds** of Britain and Europe



Helen Roy and Peter Brown  
Illustrated by Richard Lewington



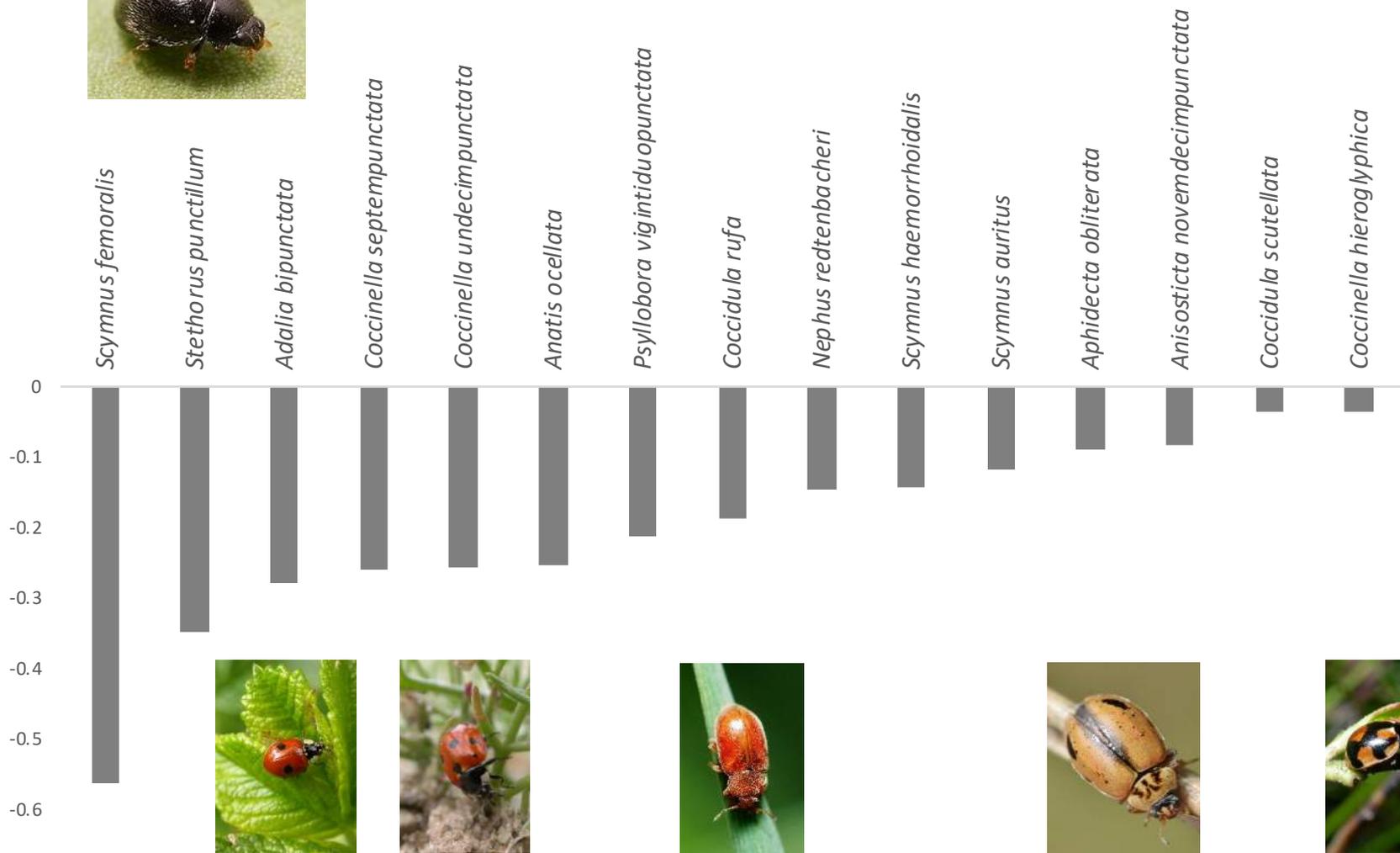
Helen Roy  
Peter Brown  
Robert Frost  
Remy Poland

B L O O M S B U R Y

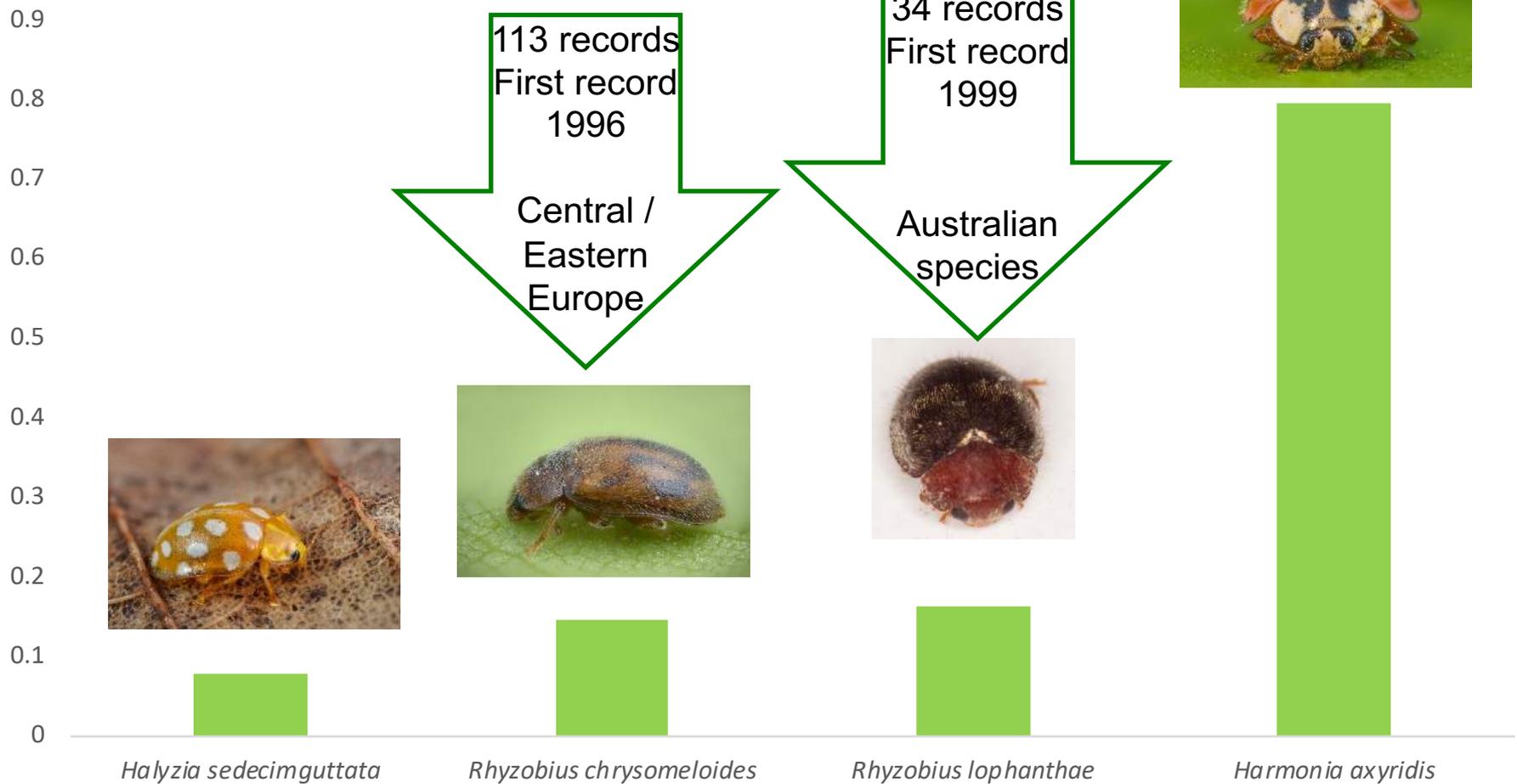
More than 200 000 records; 19000 recorders



# Species in decline (1995-2015)



# Species on the increase



# From ladybirds to hornets

*Vespa velutina*

Terrestrial predator

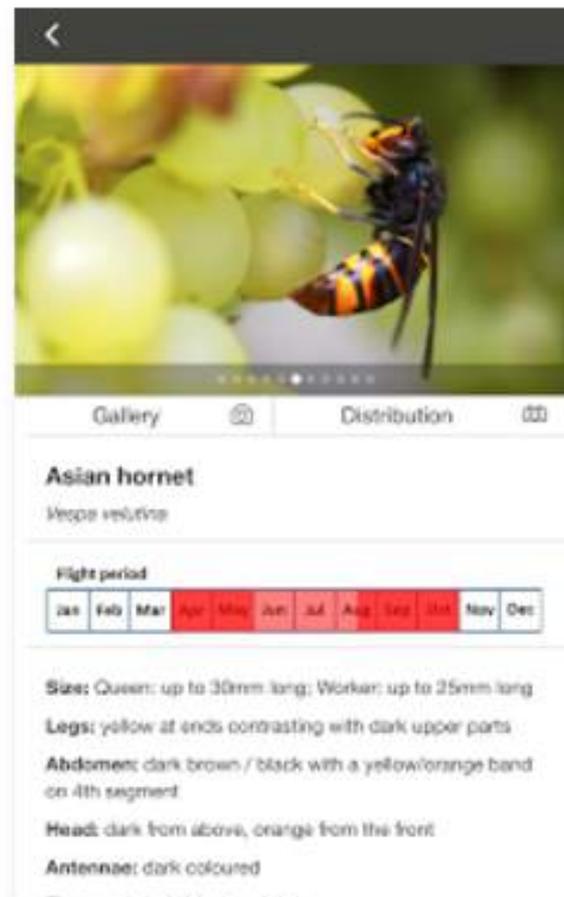
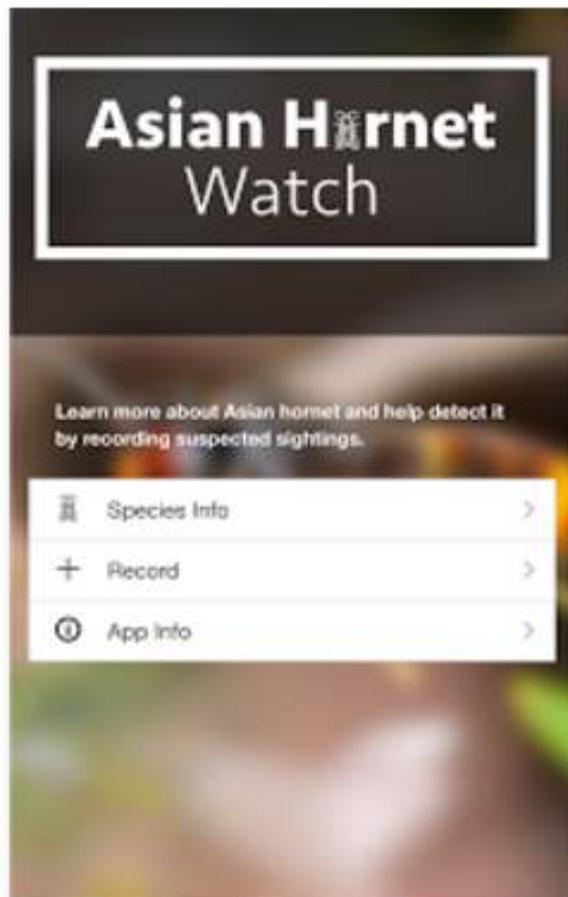
Native to China

Arrived in pottery  
consignment

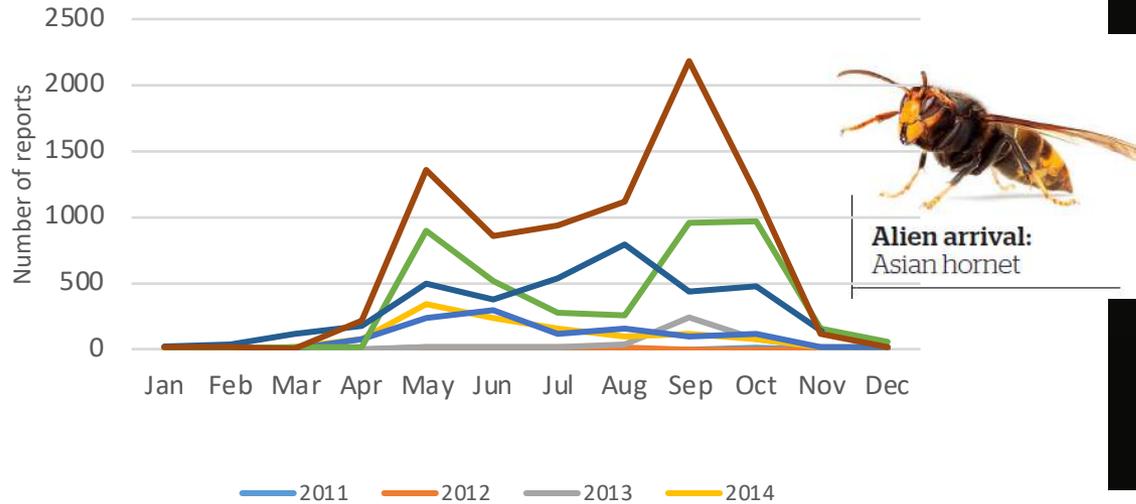
Bordeaux, France in  
2004



# Asian Hornet Watch



# Citizen science for monitoring invasions



Asian hornet – arrived September 2016



Eradicated in 2016 and 2017  
★ New records Autumn 2018



# Alien CSI

Increasing understanding of alien species through citizen science



COST is supported by the EU  
RTD Framework Programme

# ...charismatic species...



...amazing recorders...



# Unravelling ecology together...



# Summary

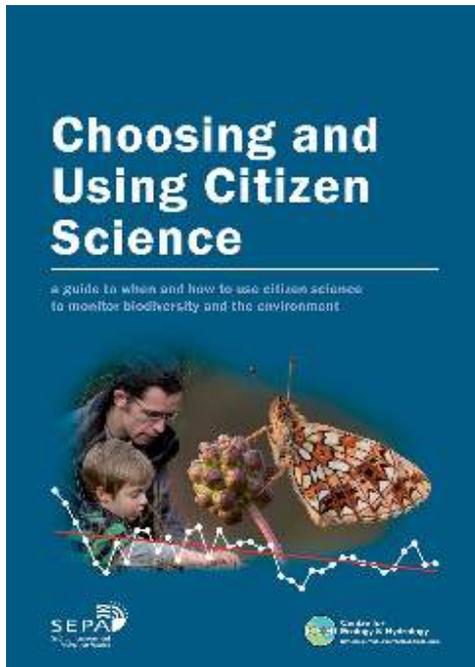
- Many, many reasons for engaging people with biodiversity
  - Need for big data to address big ecological questions
  - Need to engage people in decision-making
  - ...etc
- But words can not describe the joy of celebrating biodiversity together



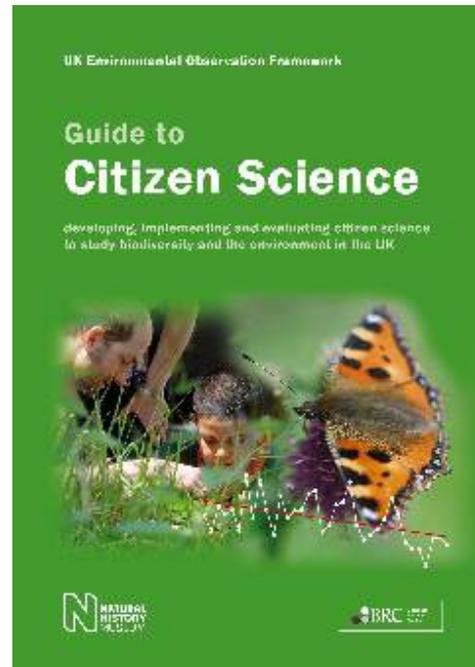
The screenshot shows the BBC Inside Science website interface. At the top, it features the BBC Radio 4 logo and the text 'BBC Inside Science'. There are navigation links for 'Home', 'Episodes', 'Clips', 'Galleries', 'Podcast', 'Presenter', and 'Contact Us'. A 'LIVE' indicator and 'The Film Programme' are also visible. The main content area features a video player with a woman speaking, a 'Listen live' button, and the title 'UK pollinating insect numbers, Tracking whales using barnacles, Sleep signals'. Below the title is a short text summary and the date '28 March 2019' with a '28 minutes' duration. To the right, there are sections for 'On radio' (Today 16:30 BBC RADIO 4) and 'More episodes' (PREVIOUS: Where next World Wide Web? Space rocks and worms; NEXT: 04/04/2019). A link to 'See all episodes from BBC Inside Science' is at the bottom right.

# Tool kits for citizen science...

How to choose citizen science approaches



How to run citizen science well



Evaluating cost-benefits of citizen science



# Thank you



UK Research  
and Innovation