Engaging your audience – Experiences from the UK Ladybird recording scheme

Helen Roy and Peter Brown (and nearly 19 000 others)

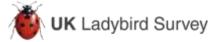
















































Wonderful life of citizen science





































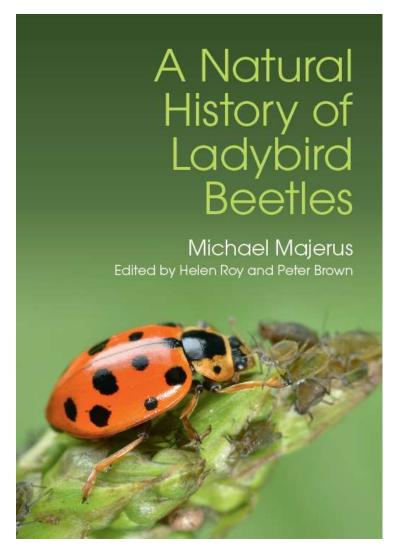




...a ladybird perspective



Standing on shoulders



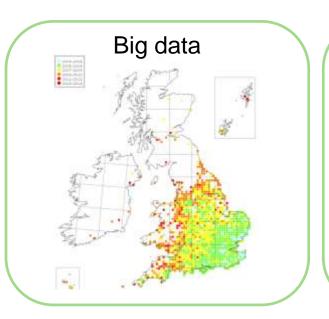






A fascinating and most thorough treatise on the biology, folklore and scientific research of the world's Ladybirds. A wonderful legacy to the work of Mike Majerus.

The joy of recording well-loved species







Fun

Big Big Bus

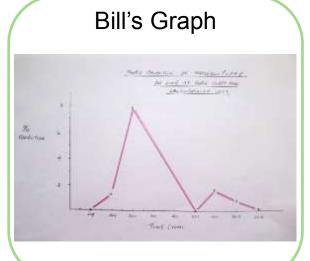
Company Bus





...collaborative









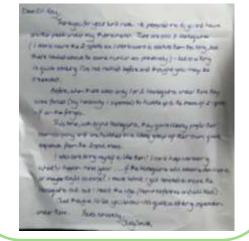


http://ballachurryreports.blogspot.co.uk/

Royal Mail Stamps



Judy's Thermometer



Understanding participants



Contributing records UK Ladybird Survey











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

Promote and publicise

case

erent than we were in

m Pattinson said the eat to satisfy him that equisite knowledge; order being in place, or hear any evidence truction, of a vehicle dby the process.

ecutive director of id. "This verdict is the to peaceful proreantly for Britain's of ordinary people

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es out of business,
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is in needs robust

National

Ten things we learned this week

Find out on our website thesusadian com

Bluebells and butterflies trumpet warm spring

Mild 2014 gives flying start to flowers and wildlife

Met Office forecasts rain moving in from Sunday

Jessica Aldred

Good Friday and Easter Saturday will bring the best weather of the Easter hank holiday weekend, with forecasters predicting dry and sunny skies and temperatures in the mid-teets across the UK.

But the outlook on Sunday and the bank holiday Monday is for cloudier conditions with the chance of min across England and Wales. The Mer Office warns that this may havald a period of unwittled weather, possibly lasting until the end of the month.

The mild winter and warm spring have meant that there is a wealth of wildhis on display for those staying in the UK. from bees and butterfire to bloesom and budt.

Binebells are flowering far earlier than in last year's cold spring, with peak displays expected in time for Easter, according to a survey by the Woodland Trust.

The charmy said nearly 200 observations of native bluebells had been unmitted to the Nature's Calendar website, which asks the public to subnat sightings of natural events that mark the season.

Just 43 records had been submitted by this time last year, as the UK stringfed to shake off cold weather. The trust is expecting a much earlier average first-flowering date for bluebells than in 2013, when the average in the UK was 5 May. The oatlest average date on record was 4 April 2012.

Latest figures from the British Trust for Ornithology show butterfless have already emerged in significant numbers in gardens around the country, seen in 23% of gardens, compared with 4% last year.

A survey by the Centre for Ecology and Hydrology has already received reports of many of the UK's 46 species of ladybird.







Above left, bluebells in Hampshire. Many flowers and insects are out earlier this year blain phasm Andrew Statthews, P.A.

An extremely mild winner led to signs of apring as early as lamiary, with snowdrops and hazel flowering, plus sightings of lidyburds and butterflies.

Generally, the rising temperatures of climate change mean spring is arriving earlier. British flowers came out two to It days earlier in the past 25 years than in any previous quarter-century, and the timing of reproduction has shifted forward by

about 11 days between 1976 and 2005, previous research has shown.

The warmer weather has also belied tourism. About 3.4 million people are taking an Easter break of at least one might stay in the UK and 6.5 million are planning a day trip. ViniEngland's chief concurred, lumes Bernssford, said the holiday industry had railled following the Boods.

UV levels are likely to be low to used hum.

However, the Met Office and there was an 'corne anomaly' over the UK, meaning that levels could be higher than predicted.

The weather is unlikely to heak moords. The warmest Easter was in 2011, when temperatures his 27.80, (82F) in Whites, Surrey, The coldest was in 1986, with 45.80, (5.4F) in Laggaria, inverses share, and the wetters was in 1963, with 148 mm 0, 86m of rain in filashoo besidening, Gwymenth.

Holiday e begins wi and road

Sian Elvin and Shiv

The Easter getureay be Channel Thomas pass might mare start to the rate incidents led to be those taking Policest trains and high-speabetween London and

A fatality new Liliinvolving a French resulted in diversion star trains. Then a Eshartle train brokeleading to further de

Angry customers tweeted pictures of upwards of a thous analong around the Pancius station.

One customer.
"Five bours late, of sat together on or chare at check in."

Further transp and call emord ye Capital Cannect Brightim sem fa

Many major to delays as famile apring sumbine

Acound 1.6 m head abroad or home \$10,000 to fly from Head wick, and 120,2 at 120,000 from head to the from heattich.

to be the businesses in the the businesses. I due to extend the weekers







08/03/2013





Rarities and Recordings

Series 3 Episode 24 of 24

In this week's programme species conservation stories reveal the importance of recording both the rarity and the commonplace. The Slender-billed curlew is on the edge of extinction, no official confirmed records of its existence have occurred since 2001 although there have been sightings of it in 2010 but photographic evidence was not taken. Horatio Clare, a writer and journalist, is on a quest, to follow the route of the bird's migration route from its Siberian breeding grounds to the area around the Mediterranean Basin, to hopefully find evidence that it still exists.

Kelvin Boot finds out about the threat facing many species of moths in the southern part of the UK, the recent "State of Britain's Larger Moths Report 2013" with data accumulated over the last 40 years has shown that there has been a 28% decline overall in abundance of larger moth species and in some areas like southern England, the figure is as high as 40%.

Promotion of UK Ladybird Survey







NEWS

Science Business Politics Tech Health Education Entertainn

Science & Environment

We're being invaded - by ladybirds

(i) 31 October 2016 | Science & Environment



34 News

YHE YIMES Trunday February 7 2006 Through this sedies: earney we have

been able to track to managements and are now beginning to understood more complex aspects of the ecology of the horizon instruct."

Because it own to many aphids.

Spot the difference: one ladybird is at risk, the other is a cannibal

An insert that copy held promise as a natural pert controller was branded the most toward species in Britain The barlegan ladyland has taken part four years to spread across England and to make arreads into colland and Wales, a fest that took the grey against a century to eghtings have been recorded of the

Alien species

Brey squired Care to Briton from North America in 1876, Found most of England and Water and moving into Scotland, Larger than a virus which

American shared prayfish hadren while-clawed courter yes being enviloated

Armertean mink Brought here for their fur in 1829 but escaped anto the wed where by the larger, more aggressive American they have half a severe product on water vole species which also carries observe dearly a 90 per cent foll in the to the notive animal

He progress has been tracked by the Harlespon Lastybord Survey, an unline survey overseen by the Centre for Euclogy and Hydrology. Thou-sands of members of the public tasks part and it was funded in part by the Peter Brown, of the centre, mid-

"It's the most invasive species in Brit-ats. It is perhaps occasied by the fame obestruct leaf-power but noth-Harteques betybirds, Harmonia ar-

inhtent, which throaters to take

erids, were first adentified to Britalls in 2004 when one was seen in a pair garden in Sible Heb-ingham. Eners Last month the species was reported in Orleans

ladyford is the subject of a special tissue of the journal discovered. More than 90 scientists from Europe and North America contributed to the asprial to

hare knowledge about its impact. The form chostner leaf-rainer is as exect first seen in south-well London to 2002. It has gread rapidly and now infests about 20 per cent of home chestrut trees, causing leaf loss,

and who edited the garred, said

staple diet, as well as other lasistants, it has threatened the number of name indylateds and species, each as lace-wings, which also not aphalo, it also threatens uptail mannings. The two-

spot and server-spot ladylents are particularly Housemand. The backepos balyteri's resuction supetito for aphids attracted interest in its use as a biological pert scriptol but offer it was released in arrera European countries in the Biblic and 1990s it rapidly become established

and opened widely My Brown and "Ladybirth are you gadar het this one is a good conin ferror of his risk to biodiversity.



Science@Speakers Corner





















survey submitted

Which species? How many?

Narrow down your choice by selecting options in the Interactive Key. To set the number seen, click +/- buttons. For more details about any ladybird, point at its picture.



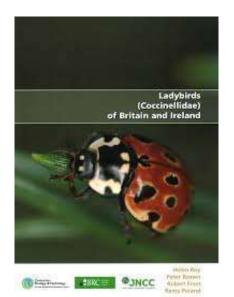


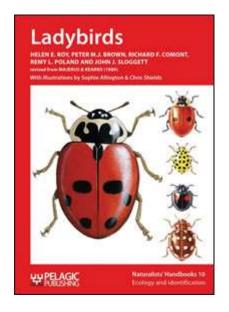




By Imogen

Atlas, field guides and resources









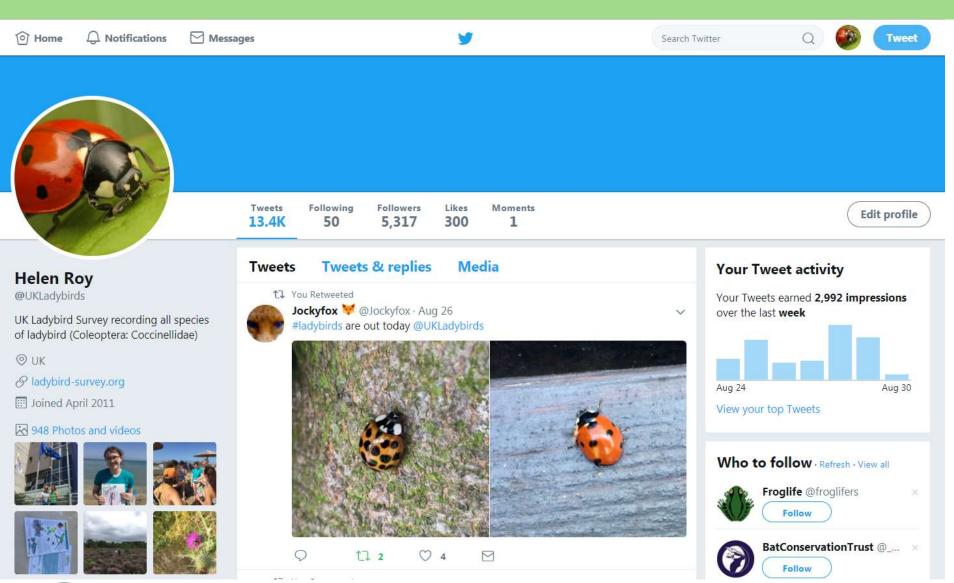








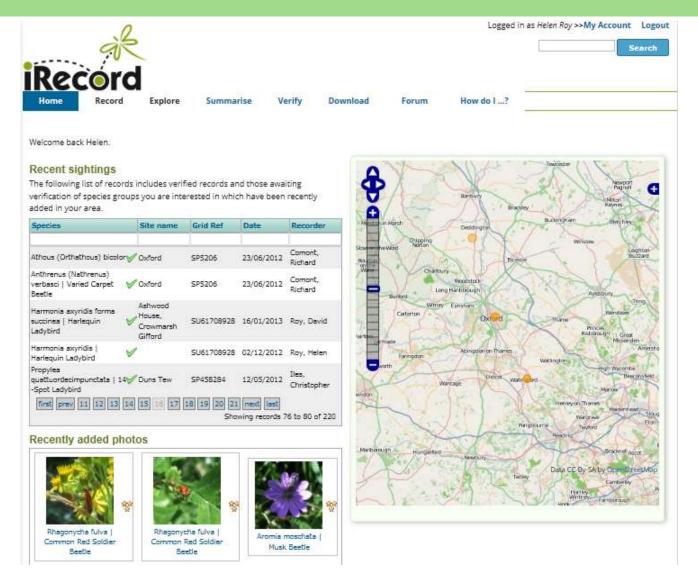
Provide feedback







Share data







Review and adapt













Analyse, interpret and publish

Ladybirds (Coccinellidae) of Britain and Ireland

The ladybird (Coccinellidae) family comprises a diverse group of beetles. There are 47 species of Coccinellidae resident in Britain and Ireland. Some species are brightly coloured and these are colloquially termed "ladybirds". Others are small and inconspicuous, although these, on close inspection, are just as attractive as their charamatic counterparts. In this atlas, we describe the distribution of ladybirds in Britain and Ireland (including the Channel Islands), using data collated through the Biological Records Centre Coccinellidae Recording Scheme (including the UK Ladybird Survey) since 1964.

Ladybirds are charismatic beetles with fascinating life histories. Their interactions with natural enemies, particularly parasites, are intriguing and we hope that this atlas will encourage further recording of ladybirds and also the natural enemies associated with them. This publication is a celebration of the work of Mike Majerus and the many ladybird recorders he inspired; tens of thousands of people have contributed their records to the UK Ladybird Survey.

"...this atlas offers so much more than distribution maps. Using photographs and text it helps with the identification of all ladybird species, from the largest to the smallest, and in all their stagest egg, larva, pupa and adult. There is information on life histories, behaviour, host plants and prey, and details of the enemies of ladybirds, especially their parasites. And it comes at a critical moment in the story of ladybirds in Britain and Ireland."

Roger Hawkins (Ladybirds of Surgey)





UNIVERSITY OF

CAMBRIDGE **







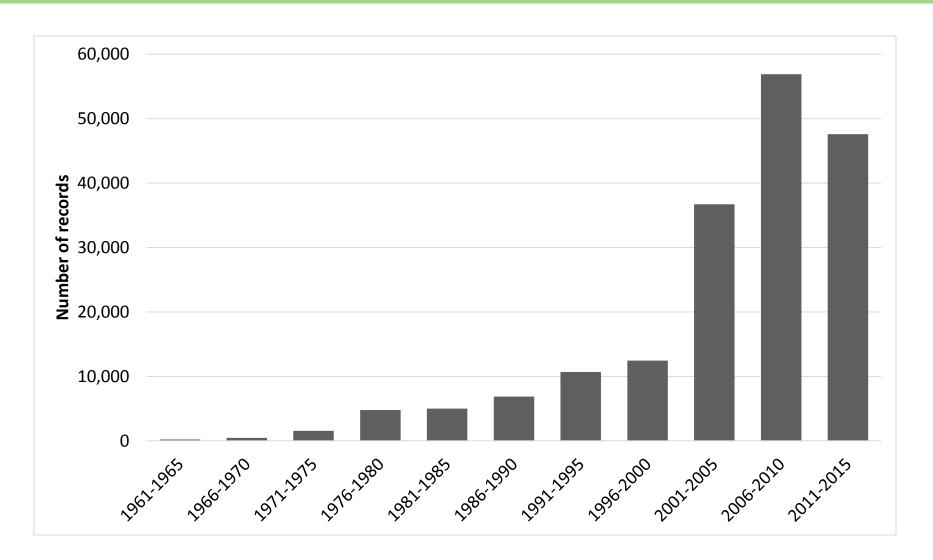




Peter Brown Robert Frost Remy Poland



Records over time









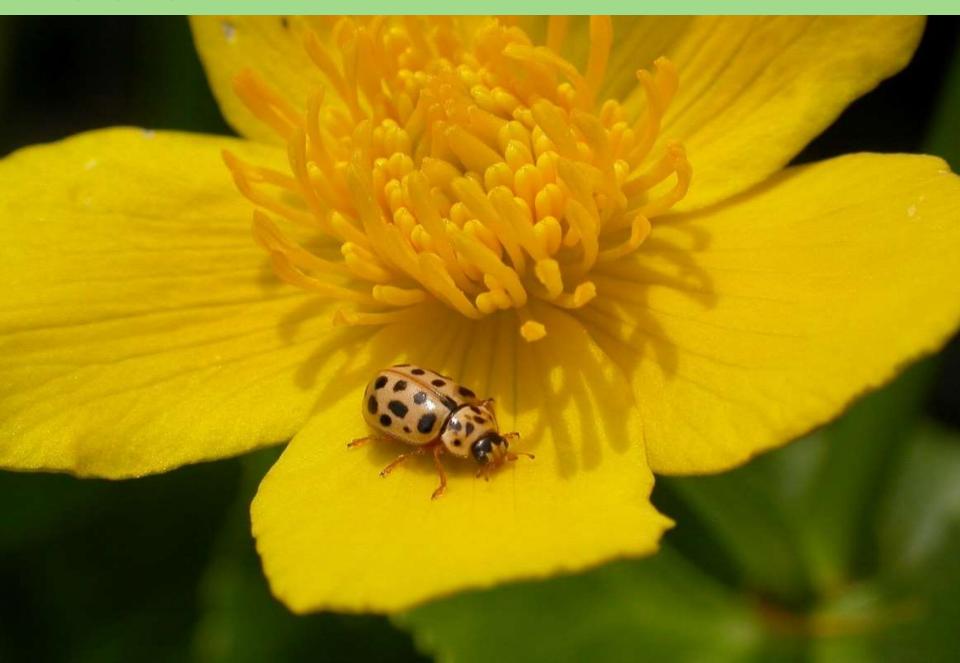
Record Ladybirds Records over time app Harlequin ladybird 60,000 arrives Survey Scheme 50,000 Ladybird Recording 40,000 Number of records established Cambridge 30,000 Soccinellidae On-line recording BRC 20,000 10,000 0 2967-1965 1910 1911 1916 1980 1985 1986 1990 1995 1996 100 100 1005 1010 1015 1015



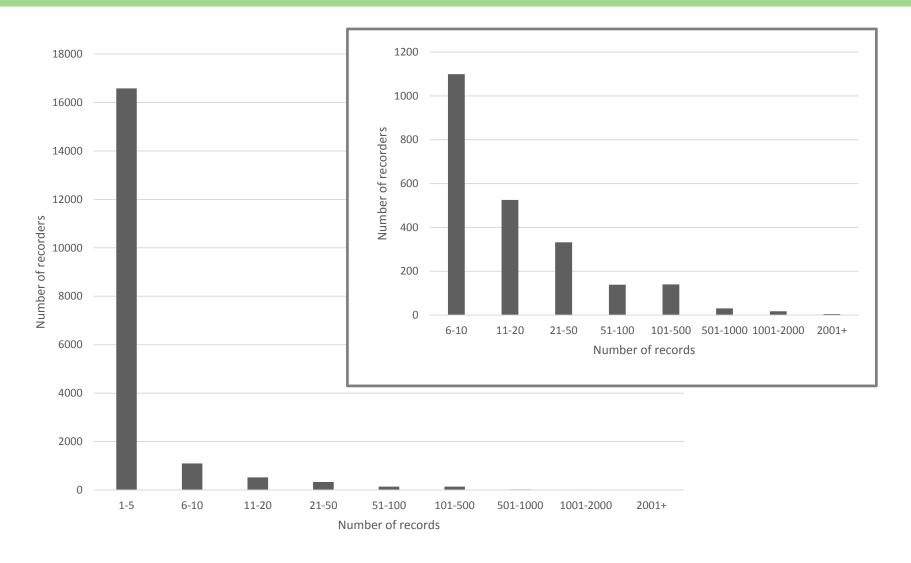




18 870 recorders



Many recorders submit only a few records









Many publications

Biol Invasions DOI 10.1007/s10530-013-0628-3

ORIGINAL PAPER

Ecological correlates of local extinction and colonisation in the British ladybird beetles (Coleoptera: Coccinellidae)

Richard F. Comont · Helen E. Roy ·

Richard Harrington · Christopher R. Shortall ·

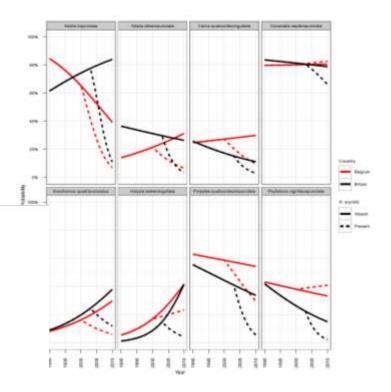
Bethan V. Purse

Journal of Biogeography (J. Biogeogr.) (2014)



Landscape and climate determine patterns of spread for all colour morphs of the alien ladybird *Harmonia axyridis*

Bethan V. Purse^{1*}, Richard Comont¹, Adam Butler², Peter M. J. Brown³, Clare Kessel⁴ and Helen E. Roy¹



OPEN & ACCESS Freely available online



Characteristics and Drivers of High-Altitude Ladybird Flight: Insights from Vertical-Looking Entomological Radar

Daniel L. Jeffries¹, Jason Chapman^{2,3}, Helen E. Roy⁴, Stuart Humphries¹, Richard Harrington², Peter M. J. Brown⁵, Lori-J. Lawson Handley¹

1 Department of Biological Sciences, University of Hull, Hull, Humberside, United Kingdom, 2Rochamsted Research, Harpenden, Herdonthiline, United Kingdom, 3 Envisorment and Sustainability institute, University of Enest, Perryn, Commell, United Kingdom, 4 NERC Centre for Ecology & Highology, Wallingford, Oxforthilin United Kingdom, 5 Department of Life Sciences, Anglia Busin University, Cambridge, United Kingdom.

(C) 25 25

Ecological Entomology

Ecological Emonology (2015), 40, 336-348

DOI: 10.1111/am.12201

INVITEDREVIEW

Ten years of invasion: Harmonia axyridis (Pallas) (Coleoptera: Coccinellidae) in Britain

HELEN E. ROY¹ and PETER M. J. BROWN² "Centre for Ecology & Hydrology, Oxfordshire, U.K. and ¹Animal and Environment Research Group, Life Sciences Department, Anglia Ruskin University, Cambridge, U.K.

Ten years of invasion in Britain

Table 1. Predictions following the arrival of Harmonia acyridis in Britain (Majerus et al., 2006) alongside a summary of recent evidence, supporting references, and overall conclusions, based on current understanding, with respect to the importance of factors in determining success of invasion by this species.

| Prediction | Evidence | References | Conclusion |
|--|--|--|---------------|
| Eurytopic nature of <i>H. axyridis</i> will contribute to rapid spread | The range of host plant associations and widespread distribution of H. asyridis in Britain seffect the eurytopic nature of this species, although coniferous woodlands may negatively affect the spread of H. asyridis. | Brown et al. (2008b, 2011a) | + |
| Climatic adaptability of <i>H. axyridis</i> will give it a competitive advantage over some of the more niche-specific native ladybirds: | Habitat breadth is an important factor contributing to the invasion success of <i>H. axyridis</i> . Climatic conditions have not been a barrier to the colonisation and spread of <i>H. axyridis</i> in southern Britain, but are speculated to have limited its abundance in northern England and in Scotland. | Comont etal. (2012) and Parse et al. (2014) | +/? |
| | There are clear discrepancies between the observed and predicted (dimate model) distributions of <i>H. weyridir</i> , and it is apparent that climate is an important factor in determining the spread of this species but alongside other interacting biotic and abiotic factors. | | |
| Maritime climate of Britain will allow <i>II. asyridis</i> to breed throughout the summer, with no requirement for a summer dormancy | Continual breeding of this species is apparent and at least two generations of H, asyridis have been observed each year since arrival. | Brown et al. (2008b) and Roy et al. (2011a) | 10.00 |
| | Multivoltinism contributes to the rapid rate of population growth of H. asyridia each year and, consequently, to spread. | | |
| Phenotypic plasticity will allow <i>H. axyridia</i> to successfully and regularly extend its breeding season to September, October, and even into November | Phenotypic plasticity displayed by H. asyridis enables local adaptation at temporal and spatial scales; increase in autumnal melanisation may have accelerated the spread of H. asyridis. | Michie et al. (2010) and Purse et al. (2014) | 7 |
| | Further work is required to elucidate the importance of phenotypic plasticity in the invasion success of H. axyridis. | | |
| H. accyrides will spread across the entire British mainland by 2008 | The first record of <i>H. asyridis</i> in Scotland was in 2007. However, there are relatively few seconds in Scotland and its distribution and breeding there are limited. High dispersal ability of this species has clearly been demonstrated in most of England | Brown et al. (2008a, 2008b, 2011b) and Roy et al. (2011a) | + |
| Spread and increase of <i>H. asyridis</i> in Britain may therefore prove to be beneficial to crop systems by restricting aphid numbers below economically damaging levels and so reduce the use of chemical pesticides | and Wales. Recent research highlights the importance of H. asyridis as an aphid predator in crop systems | Wells (2011) | 7 |
| | in the UK. Further work is required to explore the ecosystem-level impact of H. axyridis on pest insects and particularly the ecosystem service provided by this alien predator. | | |
| Harmonia asyridis is likely to have a negative effect on other aphidophages in three ways: resource competition, intra-guild predation, and intraspecific competition | There is considerable evidence of intra-guild predation from laboratory and field observations. | Ware and Majerus (2008), Ware | |
| | Observations from the UK Ladybird presence of H. avyridis and declin Further work is required on connecti | et al. (2009), Wells et al. | cological Ent |

Further work is required on competit mesocosms suggests that high aph There is considerable evidence of a effects on ecosystem function re-A few studies indicate the importance interactions. The importance of chemical defenadvantage of H. axyridis over na There have been many reports of H.

dwellings, and in some cases peop There is some evidence of negative Ecological Entomology (2015), 40, 336-348

itomology

DOI: 10.1111/een.12203

INVITEDREVIEW

Ten years of invasion: Harmonia axyridis (Pallas) (Coleoptera: Coccinellidae) in Britain

HELEN E. ROY1 and PETER M. J. BROWN2 1Centre for Ecology & Hydrology. Oxfordshire, U.K. and 2Animal and Environment Research Group, Life Sciences Department, Anglia Ruskin University, Cambridge, U.K.

Efficient chemical defence and relatively large size

reproductive advantage over many native British

would provide H. axyridis with a significant

H. axyridis will become a nuisance to humans

Going global...

Diversity and Distributions, (Diversity Distrib.) (2016) 22, 982-994



Rapid spread of *Harmonia axyridis* in Chile and its effects on local coccinellid biodiversity

Audrey A. Grez^{1*}, Tania Zaviezo², Helen E. Roy³, Peter M. J. Brown⁴ and Gustavo Bizama⁵

BESEARCH COMMUNICATIONS: RESEARCH COMMUNICATIONS

Lessons from lady beetles: accuracy of monitoring data from US and UK citizenscience programs

Mary M Gordiner", Leslie L Allier', Prinr MJ Brown', John E Losey', Helen E Roy', and Rebucca Rice Smith!

Citizen scientists have the petential to play a crucial role in the misky of rapidly changing lady bortle (Caccinellishe) populations. We used data derived from three concinellish focused critizen science programs to cannive the costs and benefits of data collection from direct three science obtains used unificately and verified citizen-science observations verified by instead expens) programs. Data collated through direct citizen science overetimated species sciences and diversity values in comparison to verified data, through direct citizen sciences overetimated assertances, our analysis shows that verified citizen sciences was more cent offective than moditional science (in terms of data galaxed per dollar). The ability to collect as greater number of samples through direct critican science may compensate for reduced nearract, depending on the type of data collected and the type(s) and actions of server committed by voluntoers.

Front Earl Engreen 2012; doi:10.1000/110100

@h_1\15!!

Insect Conservation and Diversity

Insect Conservation and Diversity (2016) 9, 202-209

doi: 10.1111/jcad.12158

Long-term changes in communities of native coccinellids: population fluctuations and the effect of competition from an invasive non-native species

ALOIS HONEK, ¹ ZDENKA MARTINKOVA, ¹ ANTHONY F.G. DIXON, ² HELEN E. ROY³ and STANO PEKÁR⁴ ¹Crop Research Institute, Prague, Czech Republic, ²Department of Biodiversity Research, Global Change Research Centre AS CR, Brno, Czech Republic, ³NERC Centre for Ecology & Hydrology, Wallingford, UK and ⁴Department of Botany and Zoology, Faculty of Sciences, Masaryk University, Brno, Czech Republic

Biof Securios DOX 10.3007\(\delta\)1000-016-1077-0



INSECT INVASIONS

The harlequin ladybird, Harmonia axyridis: global perspectives on invasion history and ecology

Helen E. Roy - Peter M. J. Brown - Tim Adriaems - Nick Berkovm - barbel Borges - Sasana Chusdha-Trullas - Richard F. Camont - Patrick De Cheege - Henre Sedem - Armand Estong - Edward W. Evans - Benoit Farm - Mary M. Gardiner - Arhur Gil - Andrey A. Grez - Thomas Guillemand - Danny Hadewaters - Annette Herz - Alois Homek - Anny G. Howe - Cang Hai - William D. Hatchison - Marr Kenis - Robert L. Koch - Jan Kodlam - Lori Lawson Handley - Eric Lambaert - Antoon Loomans - John Loosy - Alexander O. Lukashink - Dirk Mans - Alexandra Magro - Katie M. Mureray - Gilles San Martin - Zdenka Martinikova - Ingrid A. Minnaur - Oddřich Nedved - Marina J. Octova-Bienkowskaja - Nassa Oasous - Wolfgang Badbisch - Hans Peter Ravn - Gabriele Rondoni - Steph L. Rucke - Sergey K. Ryndevich - May-Guri Saethre - John J. Sloggett - Antonio Onofer Soares - Rham Sads - Matthew C. Tinsley - Axel Vandereycken - Panl van Wielink - Sandra Viglášová - Peter Zach - Ilya A. Zakkurov - Tanla Zaviezo - Zilma Zano

Bassined: 13 July 2013 / Accepted: 5 Neverther 2013 © Springer International Publishing System-had 2010





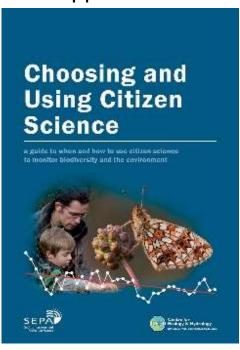


Informing non-native species alerts

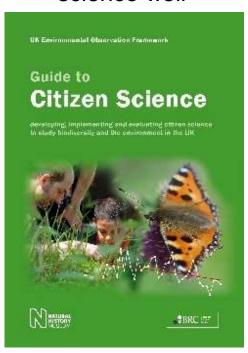


Lessons learnt beyond the ladybirds...

How to choose citizen science approaches



How to run citizen science well



Evaluating costbenefits of citizen science









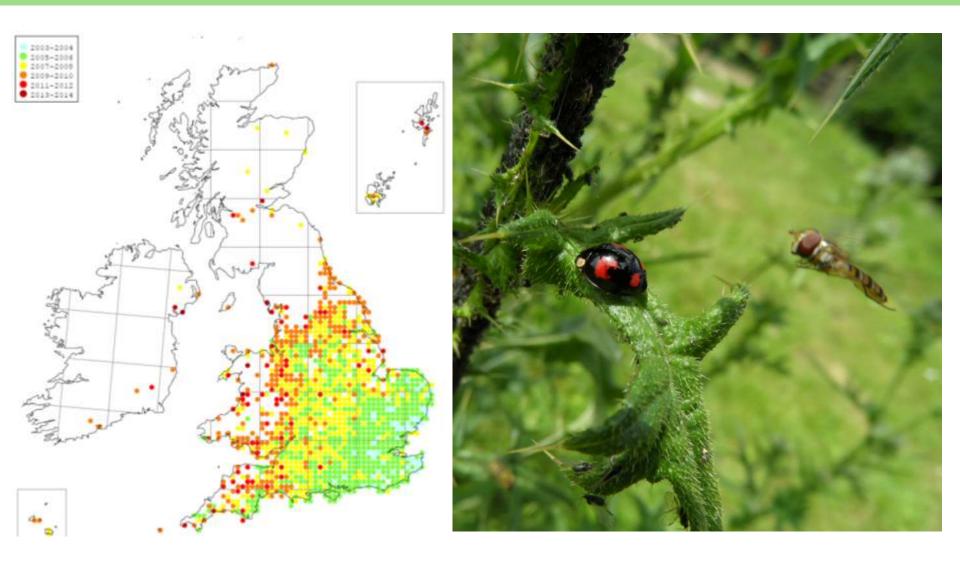
Challenges



13 565 = unverified ladybirds records



48 726 (26%) = verified harlequin records









Many potentially under-recorded species



New discoveries on your doorstep...



Improving data flow



One UK Ladybird Survey week:

31st October 2016 – 7 November 2016

907 records received within iRecord

(738 = Harmonia axyridis)

457 records verified

Last update to the NBN Gateway:

14 July 2016







Data licensing, access and exchange...



ABOUT US RECORD, SHARE & EXPLORE DATA TOOLS, RESOURCES AND PUBLICATIONS

Additional drivers for changing the data licenses options on the NBN Gateway are:

- to allow DEFRA network organisation to achieve Liz Truss' vision of open data (JNCC, EA, NE etc.)
- . to ensure organisations in UK that want open data can use the NBN Gateway for that
- · to streamline data sharing with GBIF
- to act on recommendations given at the NBN Gateway Terms and Conditions Workshop (November 2014).
- . to provide for closer connectivity (webservicing etc) with data.gov.uk

What changes have been made?

The following four license options are now available on the NBN Gateway:

- Open Government License (OGL)
- Creative Commons Zero (CCO)
- Creative Commons with Attribution (CC-BY)
- Creative Commons, with Attribution, Non-commercial (CC-BY-NC)

A new clause (2.8) has been added to the NBN Gateway Terms and Conditions to give these licenses legal effect. This new clause states that: "Datasets with a standard data license (OGL, CC-BY, CC-BY-NC, etc) are governed by the particulars of the data license. These licenses override sections 2 to 7 of the "Use" section of the NBN Gateway Terms and Conditions."

Read the NBN Gateway Terms and Conditions

How do I assign a data license?

There is no obligation to assign a data license to your datasets, though following the recent questionnaire on Improving Access to NBN Data and Products it is clear that there is an appetite

Aim to have fully open access = Creative Commons Zero







NEWS AND EVENTS

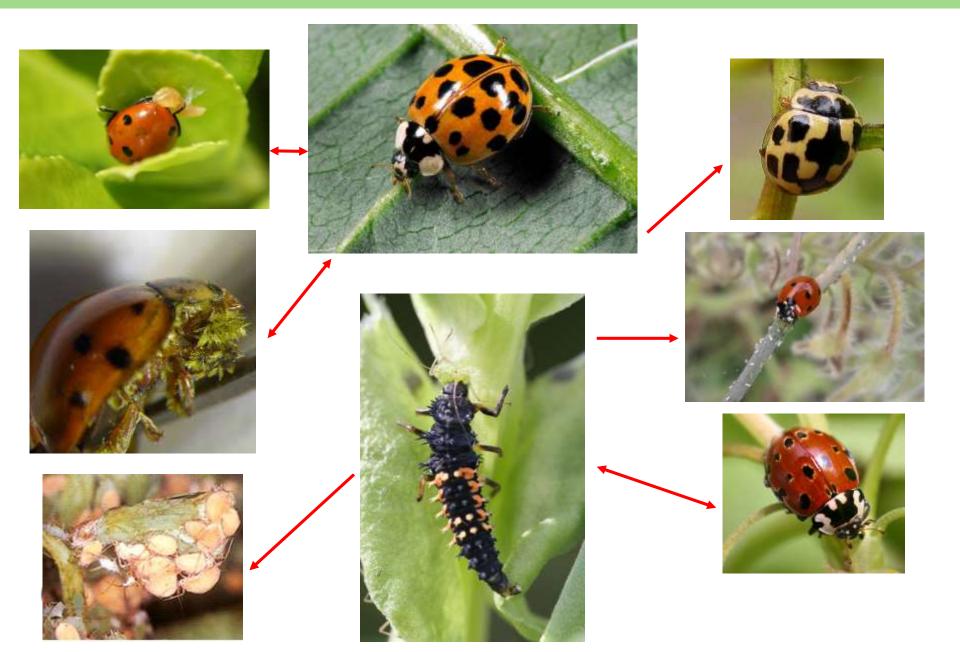
JOIN OR DONATE

...charismatic beetles...





...unravelling ecology together...





Many opportunities

- Fun and collaborative way of engaging many people
- Large-scale, long-term dataset (quality assured!)
- Improving understanding of ladybirds but also invasion biology, citizen science...

Few challenges

- Never quite enough time for ladybirds...
- Need to ensure rapid feedback and verification
- Data flow always the greatest challenge

Thank you



















ESF provides the COST Office through an EC contract



