



# NFBR

NATIONAL FORUM  
FOR  
BIOLOGICAL RECORDING

Newsletter 53 – February 2017

**Biological records for the  
east-west rail route – see page 8**

*(photo by Peter Stronach)*



Don't miss the NFBR conference, 5–6 May 2017,  
in Nottingham – see back page for details

## Contents

<a href="#">Editorial</a> .....	3
<a href="#">News from NFBR</a> .....	4
<a href="#">Other news</a> .....	5
BSBI New Year Plant Hunt .....	5
New Nature .....	6
PREDICTS data sharing .....	6
The water beetles of Yorkshire .....	6
Guide to ichneumon wasps .....	7
UK awards for biological recording .....	7
<a href="#">Using biological records to design a railway</a> (Richard Gowing) .....	8
<a href="#">Agromyzidae Recording Scheme</a> – a new scheme for leaf-mining flies (Barry Warrington) .....	12
<a href="#">News from NBN</a> .....	14
<a href="#">From Recorder to Report: a journey through the State of Nature</a> (Charlie Outhwaite) .....	16
<a href="#">News from ALERC</a> (Tom Hunt and Deb Muscat) .....	19
<a href="#">The Tom.bio ID Visualisation Framework</a> (Rich Burkmar) .....	20
<a href="#">Recent research</a> .....	21
<a href="#">NFBR Conference 2017</a> .....	22

---

*Cover photo: Barn owl, one of the species of concern on the east-west rail route  
(photo by Peter Stronach)*



## Editorial

NFBR Newsletter no. 53 brings news of our 2017 conference, which addresses the theme of making biological recording appropriate to the scale that is needed. We will be in Nottingham on 5 and 6 May, with a long conference day on the Friday and a field excursion on the Saturday. Please join us if you can, and spread the word to anyone who would be interested. See the back page for further information.

This newsletter contains main articles on how biological records have been put to good use for planning the redevelopment of the east-west rail route (page 8), and for informing last year's major State of Nature report (page 16). And we are pleased to welcome the latest addition to the set of national recording schemes, with a new scheme focusing on the leaf-mining flies in family Agromyzidae (page 12).

As usual there are news updates from partner organisations, summaries of recent research, and the latest on NFBR's own activities. Please do have a think about the volunteer opportunities on page 5, there is always more that can be done to support biological recording if we can bring people together to help.

Thanks to all who have contributed words and images for this issue. Newsletter 54 is due in the summer, so please get in touch if you have news, reports, articles or photos to share. Contact the editor, or share your views more widely via our [Twitter feed](#), or on our [Facebook page](#).

"The editor" next time will not be me! I am very pleased to be able to welcome Elaine Wright to the post for the next issue. Elaine has recently become a trustee of NFBR (see page 4) and has kindly agreed to take on the editor role, with assistance from council member Teresa Frost. I've thoroughly enjoyed editing over the last five years, and am very grateful to all who have supported me with articles and contributions. It's never been a struggle to get material for the newsletter, which goes to show how active and diverse the field of biological recording is.

*Martin Harvey, February 2017*  
[editor@nfbr.org.uk](mailto:editor@nfbr.org.uk)

**The deadline for sending in articles for newsletter 54 is  
1 May 2017**





## News from NFBR

Recent activity by NFBR has included:

- Attendance at the 2016 ALERC conference
- Involvement in preparations, launch and subsequent discussion of the 2016 State of Nature report
- Delivery of a workshop on “Captivating and Engaging People” for the 2016 NBN Conference in Edinburgh and preparations for the next NBN working group meeting on this topic
- Discussions with ALERC on the need for promoting local recording networks and LERCS as a complement to national datasets and services
- Internal committee work has included drafting job descriptions for NFBR committee roles, and ensuring that we continue to comply with Charity Commission rules.

In addition, NFBR is represented on a number of committees and groups in order to help develop and promote biological recording. A full list can be seen on our website: [www.nfbr.org.uk/?q=representation](http://www.nfbr.org.uk/?q=representation). Thanks to the individuals who carry out this work on behalf of NFBR, and a particular thanks to our Chair, Graham Walley, who has been particularly active in this field. If anyone has any interest in any of these topics, would like to feed in their views, or would like to represent NFBR on any other working group, then please contact us (contact details are listed on the website, or see page 3).

### Membership leaflets

Can you help spread the word and encourage others to join NFBR and follow us via social media? We are able to supply membership leaflets to anyone promoting NFBR at relevant events.

### New trustee

NFBR Council welcomes the recent appointment of Elaine Wright as a [trustee of NFBR](#). Elaine currently works as Senior Projects and Communications Officer at SEWBRc (the records centre for south-east Wales). One of her current projects is the “[Dedicated Naturalist](#)”, which is celebrating the life and work of Mary Gillham (1921–2013), who was a pioneering female naturalist and prolific wildlife author, who in 1959 was part of the first Antarctic expedition to include women, and was awarded an MBE in 2008 for services to nature conservation. Mary has left an extensive archive of records and research which the SEWBRc project is working on to ensure it is available to future generations.

Elaine has immediately stepped up to the mark and taken on the role of NFBR Editor (see page 3) – thank you Elaine!



### Rotherham Biological Records Centre

NFBR was one of many individuals and organisations that commented on recent proposals by Rotherham Metropolitan Borough Council (RMBC) to cease hosting the Rotherham Biological Records Centre (RBRC). Among other things we pointed out that “the National Planning Policy Framework demands local planning policy and decisions to be based on evidence, the Planning and Compulsory Purchase Act 2004 (section 13) expects Rotherham to know its local environment, and the Natural Environment and



Rural Communities Act 2006 expects biodiversity to be considered in all aspects of Rotherham's working", and that RBRC played a vital role in these policy areas.

We were pleased to receive the subsequent response from RMBC, making it clear that RBRC will continue to be supported by the Council:

... the Council has considered the findings of the review, and concluded that it can continue to operate RBRC on a more financially sustainable basis. For example, a benchmarking exercise showed that the current charges for using the service are very low compared to those made by other centres across the country. Adjusting these charges to bring them more into line with typical rates elsewhere will generate additional income that will help to secure the future of RBRC at a time when the Council can no longer subsidise the service as it has done before.

We will be working over coming months to implement the recommendations of the review to enhance the service provided by RBRC, and to make it more financially resilient. Where we are able to, we will make information about changes available to customers, volunteers and partners.

Thank you for the interest you have shown in this matter. It is very pleasing that we now have the opportunity to develop the valuable work of RBRC with the continuing support of its many dedicated volunteers and partners.

### Volunteer opportunities

NFBR is a charity run entirely by volunteers. If you would like to play a role for NFBR we'd be delighted to hear from you! Current possibilities include:

- Joining our advisory council and contributing to the running of the Forum
- Helping to develop NFBR responses to consultations
- Writing articles for our newsletter or website
- Compiling a simple index to past newsletters

For more information please contact us via the addresses listed on our website:  
[www.nfbr.org.uk/?q=contact-us](http://www.nfbr.org.uk/?q=contact-us)

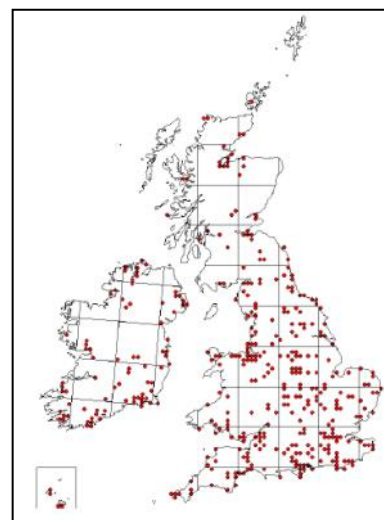
---

## Other news



### New Year Plant Hunt

The Botanical Society of Britain and Ireland (BSBI) ran another very successful New Year Plant Hunt at the beginning of 2017, and this year experimented with a new app that allowed recorders to upload records directly to iRecord. There was less in flower this year than last, but even so nearly 500 species were recorded. For more information see: [bsbi.org/new-year-plant-hunt](http://bsbi.org/new-year-plant-hunt)



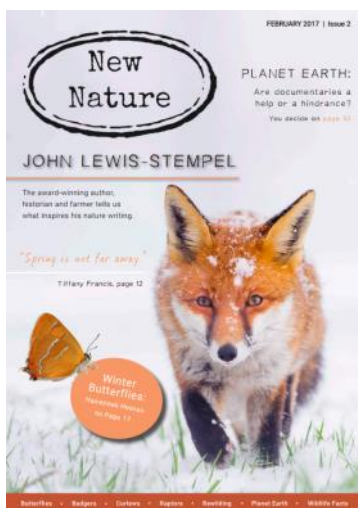
New Year Plant Hunts in 2017

### Training grants

The BSBI blog pages are always worth a visit as well. For example, there have been an excellent [series of posts](#) from people who have benefited from BSBI's training grants. It's great to see how the grants have been put to such good use.







## A new wildlife magazine

January 2017 saw the launch of *New Nature*, which is “a new e-magazine written, edited and produced entirely by young people. By young conservationists, naturalists, birders and of course, writers; each inspired by the natural world. Here we hope to offer a fresh perspective on topical issues in conservation, highlight the beauty to be seen year round in the British Countryside and bolster interest in nature writing and ecology.”

Issue 2 appeared in February and includes articles on curlews, hairstreak butterflies and foxes, plus issues around the badger cull and raptor protection, and much more. It is freely available online at [www.newnature.co.uk](http://www.newnature.co.uk)

## Global species data shared

OPEN DATA

The PREDICTS project ([www.predicts.org.uk](http://www.predicts.org.uk)) is:

“a collaborative project aiming to use a meta-analytic approach to investigate how local biodiversity typically responds to human pressures such as land-use change, pollution, invasive species and infrastructure, and ultimately improve our ability to predict future biodiversity changes”

It is a partnership involving the Natural History Museum, University College London and a range of other organisations. Those of you who were at the NBN conference last autumn will have heard Prof Andy Purvis’s excellent talk on the project.

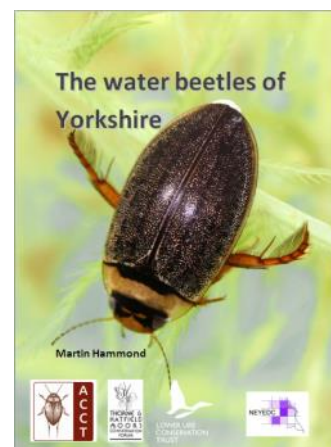
PREDICTS works with datasets from around the world to link changes in biodiversity to changes made by humans. The datasets used have now been [made available](#) via the NHM’s data portal.

## The water beetles of Yorkshire

This new atlas by Martin Hammond provides an account and tetrad maps for 210 species (78% of the British fauna). It is based on an intensive survey of Watsonian Yorkshire, producing just over 62,000 records for the period 2000-2016.

In addition to species accounts, there is a brief history of water beetle recording in Yorkshire, a review of Quaternary subfossils, advice on survey methods, a summary of additional species in the 19th and 20th centuries, and a chapter on wetland habitats.

Published by YHEDT Publishing (324 A5 pages, spiral bound), and available for £6.00 + £2.95 p&p per copy from: North & East Yorkshire Ecological Data Centre 10a Minster Gates, York YO1 7HL ([info@neyedc.co.uk](mailto:info@neyedc.co.uk)). Please make cheques payable to: Yorkshire & Humber Ecological Data Trust or email for information on payment by bank transfer.



## New Atlas of grasshoppers, crickets and allies – call for records

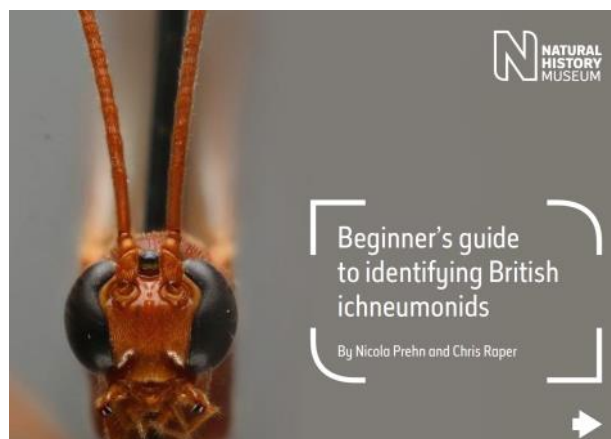
A reminder that the Grasshoppers and Related Insects Recording Scheme of Britain and Ireland ([www.orthoptera.org.uk](http://www.orthoptera.org.uk)) is working towards a new atlas, and 2017 is the last year for which records can be included. See their website for updates and targets.



## Guide to ichneumon wasps

Ichneumons are parasitic wasps that often catch people's attention as they are large and sometimes colourful. But with 2,500 species in the UK, many of which look very similar, they have been always seemed rather daunting and have been neglected in terms of identification and recording.

But now it is possible to make a start with this group, and learn to identify 22 of the most distinctive species, thanks to an innovative and beautifully illustrated guide by Nicola Prehne and Chris Raper of the Natural History Museum. With clearly labelled specimen photos they show how to safely distinguish these few species from the many others in the group. The guide can be downloaded from [www.nhm.ac.uk/take-part/identify-nature](http://www.nhm.ac.uk/take-part/identify-nature)



## UK Awards for Biological Recording

The winners of the 2016 UK Awards for Biological Recording and Information Sharing were announced at the National Museums Scotland, Edinburgh during an evening ceremony on Thursday 17th November 2016 as part of the National Biodiversity Network Conference.

These awards have been developed by NBN, NFBR and the Biological Records Centre. They run annually and their intention is to recognise and celebrate the outstanding contributions made by adults, young people and groups to biological recording, which is helping to improve our understanding of the UK's wildlife.

The winners in 2016 were:

- Gilbert White Youth Award for terrestrial and freshwater wildlife: **George Garnett**
- Gilbert White Adult Award for terrestrial and freshwater wildlife: **Richard Comont**
- Gilbert White Adult \Highly Commended for terrestrial and freshwater wildlife: **Mark Pritchard**
- David Robertson Youth Award for marine and coastal wildlife: **Jordan Havell**
- David Robertson Adult Award for marine and coastal wildlife: **Chris Wood**
- Lynne Farrell Group Award: **Essex Wildlife Trusts River Wardens**
- John Sawyer NBN Open Data Award: **Caledonian Conservation Limited**

The ceremony was kindly sponsored by Swarovski Optik UK, with awards being sponsored by Swarovski Optik UK (Gilbert White Terrestrial Awards), Paramo Directional Clothing (David Robertson marine and coastal awards) and Field Studies Council (Group Award).

Full details and photos are available at: [nbn.org.uk/news-events-publications/uk-awards-biological-recording-information-sharing/uk-award-winners-2016/](http://nbn.org.uk/news-events-publications/uk-awards-biological-recording-information-sharing/uk-award-winners-2016/)



## Using biological records to design a railway

*Richard Gowing, Principal Ecologist WSP | Parsons Brinckerhoff*

In April 2016 the East West Rail (EWR) Alliance was invited to speak at a conference for the biological recording community organised by the Buckinghamshire and Milton Keynes Environmental Records Centre (BMERC). The Alliance was keen to capitalise on this opportunity as it fitted well with their commitment to consult and engage widely with environmental stakeholder groups in the project area. The conference also presented a good opportunity to gain a better understanding of local biodiversity issues and promote the project itself.

This article expands on some of the themes discussed in the presentation given by the Alliance. Using EWR as a case study, a number of ways in which biological records are a valuable resource to those undertaking Environmental Impact Assessments (EIA) are discussed. Some suggestions on how the biological recording community might seek to positively influence the outcome of EIA projects by engaging fully with the assessment process are then identified.

### **East West Rail Phase 2**

EWR is a major project to establish a strategic railway connecting East Anglia with central, southern and western England. The 'Western Section' of EWR is a committed, funded scheme to re-introduce passenger and freight services between Bedford and Oxford, Milton Keynes and Aylesbury. It involves upgrading and reconstructing sections of existing and 'mothballed' rail track. Phase 1 of the Western Section, linking Oxford and Bicester, was completed in 2016 and is now operational. The Alliance is seeking a Transport and Works Order (TWAO) to develop Phase 2 of the Western Section (EWR2) which will allow trains to run from Bicester to Bedford through Milton Keynes with a branch down to Aylesbury and on to Princes Risborough and London Marylebone. To secure the TWAO, the Department for Transport requires the Alliance to produce an EIA identifying all key environmental impacts associated with the proposed development and mitigation for the most significant effects. Ecology is a key component of an EIA along with other environmental disciplines such as hydrology and air quality.

### **The importance of biological recording data to the EIA process**

The accepted standard in the UK for undertaking the ecology part of an EIA, or ecological impact assessment (EcIA), is set out by the Chartered Institute of Ecology and





Environmental Management (CIEEM 2016). The EclA method requires a comprehensive assessment of all 'important ecological features' and the identification of significant effects on those features. An EclA is typically informed by extensive desk study and primary field survey information. The findings and conclusions of the EclA are used, firstly to avoid and reduce potential ecological impacts, and as a last resort, to compensate for unavoidable ecological impacts (e.g. through new habitat creation).

Understanding the way in which an EclA works is key for those seeking to engage with and influence the process. Data collection, field survey and ecological impact assessment for a project of the size of EWR2 will, when complete, have taken over two years. So there is ample opportunity for local recording organisations to contribute to the process in this timeframe. The following five examples serve to illustrate the range of ways in which data generated through biological recording programmes has played a big part in helping to produce a robust EclA.

- **Defining survey areas**

EWR2 is a very large infrastructure scheme, at approximately 60 miles in length it is only outsized by a scheme such as HS2. A project of this size creates a major logistical challenge for ecologists planning a programme of field survey work; it is simply not possible to survey every inch of land for every type of plant and animal.



Dingy Skipper (photo by Martin Harvey)

Biological recording data has been instrumental in streamlining the identification of land requiring survey in two ways. It has helped target field survey effort in locations where rare, threatened and legally protected species had been previously recorded. Species records have also alerted ecologists to areas of land of potential nature conservation value. For example, an unassuming piece of ruderal grassland along a farm track east of the village of Woburn Sands was found to support a colony of two priority butterfly species Dingy Skipper (*Erynnis tages*) and Grizzled Skipper (*Pyrgus malvae*).

- **Assigning a value to important ecological features**

The CIEEM EclA process requires ecologists to rank the importance of ecological features (designated sites, habitats or species) on a geographical basis. In an EclA, the rarity, threat and distribution of an ecological feature is summarised by framing it as important at the national, regional, county, district or local level or the negligible level for those features which are so common and widespread to be highly resilient to environmental changes associated with development projects. Mitigation for ecological impacts is required to be commensurate with how important an ecological feature is.

Significant impacts on a national level feature (e.g. a SSSI) attract the most onerous and extensive mitigation and effects on local level features the least. However, a good understanding of the geographical importance of a feature is only possible where there is a wide spatial coverage of biological recording data. Whilst national conservation priorities are frequently well known, issues at smaller geographic scales are harder to elucidate without local data showing the relative scarcity of a feature.

To this end, the EclA for EWR2 was assisted by county species atlases such as: the Birds of Buckinghamshire; the Atlas of Butterflies in Berks, Bucks and Oxon; and the Conservation of Great Crested Newt in the Marston Vale Forest report. In addition, up to



date county wildlife site criteria publications provided a useful yardstick for identifying features of county importance. Without these resources it is likely that features of possibly county or district importance would have been undervalued.

- **Hard to find species**

The Black Hairstreak (*Satyrrium pruni*) is the UK's rarest hairstreak butterfly. It is mainly found in suitable woodland, scrub and hedgerow habitats in the southern English midlands, particularly sites in Oxfordshire and Buckinghamshire. It is also an incredibly difficult species to find. It emerges in mid-June, is little bigger than a 50-pence coin, has a flight period which is about two weeks long and only shows marked activity on warm, sunny days, which can be few and far between in an average English summer. With the best will in the world, not all colonies of this species would be found. The Alliance consulted frequently with the Upper Thames Branch of Butterfly Conservation (UTBBC). Consultation was greatly assisted by a number of very active UTBBC members. Alliance ecologists were able to direct UTBBC members to 'gaps' in data coverage to enable them to focus their voluntary recording efforts to help inform the EclA. In addition, UTBBC provided live updates of Black Hairstreak sightings during the short June flight period to ensure Alliance ecologists could time their surveys precisely to match local phenology. Working directly with UTBBC strengthened our understanding of the distribution and status of this rare butterfly and informed the targeting of suitable mitigation.

- **County conservation priorities**

Consultation with stakeholder groups such as the Wildlife Trust for Berkshire, Buckinghamshire and Oxfordshire (BBOWT) at the EIA scoping stage in early 2015 identified the rarity of Adder (*Vipera berus*), compared to other reptile species, in Buckinghamshire. This information was passed to Alliance ecologists to enable them to devote particular attention to finding adder overwintering sites in the early spring period when these snakes emerge from hibernation. Such hibernation sites are often used over a number of years by Adder and are vulnerable to damage during disturbance. Reptile records provided by BMERC were also important in ascertaining distribution of the few known populations of Adder in the project area. This information was important in designing suitable mitigation for this species by reinforcing the existing habitat linkages present on railway land.



Adder (photo by Peter Stronach)

- **Getting data for a sufficiently wide area**

The Barn Owl is thought to be susceptible to impacts associated with new road schemes and to a lesser extent rail schemes. Barn Owl is a large and relatively low and slow flying bird which exposes it to mortality associated with being struck by moving vehicles. It is thought that Barn Owls nesting over several hundred metres away from a source of collision risk may be at threat owing to their wide ranging behaviour. A key challenge faced by project ecologists was to obtain sufficient land access to gain an accurate landscape-scale understanding of Barn Owl distribution.

Direct field observations played a part in confirming the likely numbers of Barn Owl present in the project area. However, by establishing contact with the Barn Owl Conservation Network, the Alliance was able to access the extensive data resources



showing likely and confirmed Barn Owl nesting sites throughout the project area. The addition of this desk study data set to the field survey data set enabled the potential impact of EWR2 on Barn Owl populations to be more accurately defined and suitable mitigation designed to address this impact.

### **Securing biodiversity net positive**

Network Rail nationally has made a commitment across its Infrastructure Projects division – the part of Network Rail responsible for delivery of projects such as EWR2 – to make a Net Positive contribution to biodiversity. This target is also a key performance indicator for the Alliance – one of several measurements used to judge how successful the project has been in economic, social and environmental terms. The Alliance will use the nationally recognised DEFRA (2012) biodiversity offsetting metric to determine if a net positive contribution to biodiversity has been achieved by EWR2. The DEFRA metric provides quantitative information on the area and quality of habitat which is being removed by a development, and in turn the amount and quality of habitat which must be provided as an offset to compensate for this loss.

However, the DEFRA biodiversity offsetting metric is purely a mathematical tool and cannot determine local conservation priorities or where habitat offsets should be delivered. To fill this knowledge gap, the Alliance directed a lot of resource to consulting the local biodiversity recording community. A number of workshops were held across the project area asking participants from a range of conservation organisations such as BBOWT and UTBBC questions such as ‘What is meant by local when it comes to providing mitigation?’ and ‘What type of biodiversity is important in this area?’.

It is certainly the case that those organisations with the clearest strategy for conservation, often reinforced by well-ordered biological recording information and biodiversity opportunity mapping, were able to exert the strong influence on the character and position of potential offsets. For example, the importance of lowland wet grassland in the River Ray valley and a range of potential offset solutions benefiting this habitat were identified.

### **Conclusion**

For those submitting biological records, to learn that their data has influenced the EIA for a national rail development project is a welcome surprise. Collaboration has yielded immense benefits: Those providing data were able to adjust their survey programmes with the timeframes of the EIA to ensure that data provided by local records centres fed into the process. Stakeholder organisations in the project area had a clear idea about what the local conservation priorities were and which species warranted special consideration in the assessment. The project team was lucky to benefit from a very active recording community. The publication of recording atlases and criteria for defining local importance were of particular use.

The Alliance has facilitated this process by consulting openly with stakeholders, giving equal weight to both large and small recording organisations and by putting project ecologists in direct communication with local experts. The biodiversity net positive process in particular provided a focus for local recording organisations to work to a shared goal with the Alliance – the achievement of a Net Positive contribution to biodiversity – and to provide a meaningful contribution to survey and mitigation design and the identification of potential offset sites.

### **References**

- CIEEM (2016) *Guidelines for ecological impact assessment in the UK and Ireland*. 2nd Edition. CIEEM. Winchester
- Department for Food Agriculture and Rural Affairs (DEFRA) (2012). *Technical Paper: the metric for the biodiversity offsetting pilot in England*. DEFRA. London





## Agromyzidae Recording Scheme – a new scheme for leaf-mining flies

Barry Warrington – Organiser,  
Agromyzidae Recording Scheme



Mine of *Phytomyza spondylii*, on Hogweed (leaf-mine photos by Barry Warrington)

A new National Recording Scheme has been launched for the leaf-mining flies in family Agromyzidae.

The Agromyzidae are a large family with approximately 400 species being recorded in the UK. The majority of species have larvae that feed within the leaves of plants, often making distinctive patterns, commonly referred to as leafmines. The hostplant and mine shape, combined with how the larva deposits its 'frass' (droppings), is often unique to a particular species. Some species feed within stems, seed-heads, roots or form galls, rather than mining leaves.

The photos with this article show some examples of the common and more easily identifiable species which are often encountered in gardens.

The adult flies are very small, ranging between 1mm and 6mm in length, and some can only be identified by examining the male genitalia. However, some species can be readily identified by considering the host plant, shape of the mine, frass pattern and pupal features.

There is still so much we don't know about Agromyzidae, with the full life cycle of over 50 species still unknown, and missing information on hostplants for other species.

The Agromyzidae Recording Scheme has been set up to enable us to gain a much greater understanding of the family, in terms of population and distribution trends, host plants and life history. To enable this, the scheme will be collating records from all over the UK, through Local Environmental Record Centres, wildlife organisations and individuals. The scheme organiser, Barry Warrington, hopes that the scheme will also promote and increase public awareness of these fascinating insects, which will lead to the general public engaging in the scheme.

Gardens are a fantastic place to find leaf-mining flies, due to the wide range of host plants available. Mines can generally be found throughout the year, with the peak-time being that of May to August. Even during the winter, larvae of some species can be encountered feeding, such as *Phytomyza ranunculi*, which has been found actively feeding on Buttercup covered by snow!

Mine of *Phytomyza minuscula* on *Aquilegia*





In 2007, a species new to Britain was discovered in a private garden, feeding on Honeysuckle. This highlights that even common plants in the average garden can yield some interesting species!

A website dedicated to these flies is currently under development (see [www.agromyzidae.co.uk](http://www.agromyzidae.co.uk)). The aim of the website will be to provide a descriptive and illustrative guide to the Agromyzidae of Great Britain. However, due to the amount of work involved in creating such a website, this will take a substantial amount of time and therefore, the site will operate as 'work in progress' for the foreseeable future.



Mine of *Liriomyza strigata* on Sow-thistle

Mine of *Phytomyza ranunculi* on Buttercup



The recording scheme also has its own Twitter account, [@AgromyzidaeRS](https://twitter.com/AgromyzidaeRS). This will be used to answer any queries the general public may have, submitting records and to share Agromyzidae news. Over the Christmas period last year the scheme used Twitter and other communication channels to ask people to look out for the Holly Leaf-miner, *Phytomyza ilicis*. Despite the scheme only been a week or two old at that time, around 90 records were received in just 9 days, which suggests there are opportunities to get many more people

looking out for the more distinctive species at least.

Adult agromyzid flies can be hard to identify and may require dissection (unidentified flies by Donald Hobern, inset dissection by Barry Warrington)

With regards to submitting records to the scheme, we welcome records from experts and novices alike. To submit a record, or if you would like to know more about the scheme, you can either add your records to iRecord, use the aforementioned Twitter account, or email: [agromyzidaeRS@gmail.com](mailto:agromyzidaeRS@gmail.com)

Finally, we would like to thank all those who have helped in setting up the scheme and we look forward to receiving all your records in the future!



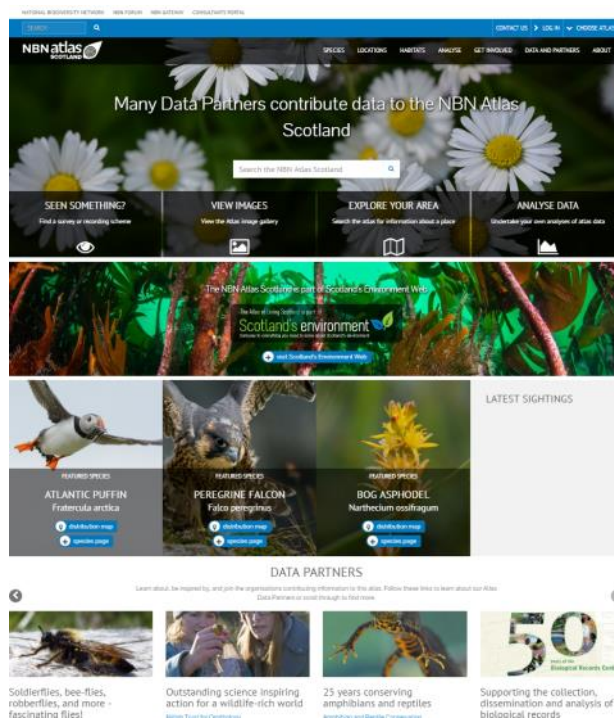
### NBN atlas updates

With the proposed switch off of the NBN Gateway in March 2017, the NBN Secretariat team is continuing to work hard with the development of the NBN Atlas Scotland, NBN Atlas Wales and the core NBN Atlas. Work is still underway in England and Northern Ireland to develop these country portals further and we will update you as soon as we can. We would like to reassure you that when the NBN Gateway is switched off, functionality will be available via the core NBN Atlas even if not all of the country portals are available. You can try out some of the tools that will be available on the NBN Atlas by going to the NBN Atlas Scotland now [www.als.scot](http://www.als.scot)

Over the past six months we have been collating and logging user feedback on the NBN Atlas Scotland, as we are constantly improving the site, and creating new functionality that our Network of data partners and data users have requested. We will be asking for volunteers to test the NBN Atlas in late January / February, before the site goes live in March, so if you are keen to be involved please get in touch at [support@nbn.org.uk](mailto:support@nbn.org.uk)

Here are five things to know about the NBN Atlas Scotland:

- **Mapping interfaces:** The NBN Atlas has two mapping interfaces, the Interactive Map and the Spatial Portal. Lots of you have been asking how to load your own shapefile into the Atlas. You can do this through the Spatial Portal, a powerful analysis tool for you to start exploring your data holdings and overlaying with others. The Spatial Portal offers more advanced functionality than the basic Interactive Map. You can link through to the Spatial Portal from the Interactive Map, as well as going straight there using the 'Analyse' button on the top navigation bar. Do these two names work for you? If not, we are open to suggestions on what we should call the Interactive Map.
- **Grid square mapping:** You can now view records as both points and grid squares in the Interactive Map and the Spatial Portal. Given records come in a range of precisions, we heard that you want to be able to see records at both their finest resolution available but also to get an overview of the coverage of the record distribution. You can select from an option of 'Variable grid size', which shows all the available resolutions from 10km–100m on the map, or 'Responsive resolution' which will only show the highest available resolution at your given zoom, changing as you zoom in and out of the map. There is also the option to only show 10 km grid squares. We have built this grid mapping functionality in, as the original Australian platform that the NBN Atlas is based on wasn't designed to cater for grid squares. What's the most useful option for you? Maps can also now be exported displaying these grid squares on them.
- **Grid references in downloads:** A lot of feedback suggested that grid references were essential in data downloads. Grid references now appear in downloads (as well as lat/longs) and are broken down into columns detailing Grid refs for 100km precisions, 10km, 2km, 1km, 100m (where available) and any location name provided.



- **Finding data you can use:** You can now filter by licence. This will help users only view the data that they know they are able to use. In the Interactive Map, select the button in the top left hand corner to 'Customise Filters'. Select 'Licence' under the Attribution heading and Update. This will add the heading 'Attribution' on the left hand side for you to expand and select and deselect the licence as necessary. In the Spatial Portal, records can only be filtered and coloured when they are displayed as points. This is due to the fact that one grid square may contain multiple records, each with different attributions. So, select 'Points' in the left hand panel, then 'Colour By' and select 'Licence'. As with the Interactive Map, you can then toggle on and off the licences you require.
- **Visibility of data licences:** Licence information is now given in the downloads. So you can filter and sort data after download and each record is clearly marked with the licence governing its use.

Additional bugs and enhancements that have been made include:

- The data partner tab on any species page now includes a simple table outlining contributing data partners, datasets, number of records and data licences assigned to the contributing data holdings
- The number of occurrence records available in the Atlas are now visible on the search results return page
- All geographic searches in NBN Atlas Scotland are now limited to just Scotland, so no more sneaky locations in London creeping into your searches!
- We located a bug in the system which was stopping the 'accepted names' being displayed alongside synonyms in the search return pages. This has now been fixed, and all species names clearly display accepted names where the nomenclature has been updated over time.

We are publishing regular updates via the NBN Atlas blog on the NBN website, so keep up to date with developments at [nbn.org.uk/blogs/atlas-blog](http://nbn.org.uk/blogs/atlas-blog)

### **Data Partner Agreements reminder**

A huge thank you to everyone who has already returned their Data Partner Agreement giving the NBN permission to transfer your data onto the Atlas platform.

Please could those of you who have not yet returned your agreements, return your completed form by email to [support@nbn.org.uk](mailto:support@nbn.org.uk) as a matter of urgency. The deadline has passed, but we still need your forms so please do get back to us. The agreements have been sent to your dataset administrator for the NBN Gateway, so please check with them if you haven't received it for action.

The strength of the NBN Atlas relies on the support of our data partners, and in the transfer of datasets from the NBN Gateway. As we aim for the NBN Atlas to be live by the end of March 2017, it is imperative that we are able to transfer datasets well in advance of this date, to avoid loss of data. The NBN Gateway will be decommissioned shortly after the NBN Atlas is live. Any permissions given for data to be displayed on the NBN Atlas will also include making that data available via the relevant country portal (e.g. NBN Atlas Scotland, NBN Atlas Wales etc.).

Even if you have already signed an agreement for Scotland, we do also require you to complete the NBN Atlas Data Partner agreement form if you want to continue to share your non-Scottish records. This new agreement can cover all of your data that are currently held on the NBN Gateway, or can be tailored for specific datasets.

Thank you in advance for your completed forms.





# From Recorder to Report: a journey through the State of Nature


















Charlie Outhwaite; CEH/UCL/RSPB, PhD student and a co-author of the 2016 State of Nature report

The State of Nature (SoN) partnership is a collaboration of more than 50 organisations which work to monitor and conserve wildlife in the UK and its Overseas Territories. The most recent SoN report brings together information from these organisations and other sources to look at the state of UK wildlife and the major drivers of biodiversity change. One of the major findings of the report was that 56% of UK species declined between 1970 and 2013. This measure was based on quantitative trends for close to 4,000 terrestrial and freshwater species. An index of species status based on species abundance and occurrence has fallen by 16% since 1970; this measure was based on 2,501 terrestrial and freshwater species.

## The data

The data used to calculate the trends and the index were sourced from a variety of organisations including many recording schemes and societies. A proportion of the trends were based on measures of abundance from standardised recording such as the Breeding Bird Survey and the Butterfly Monitoring Scheme, but it was also possible to use more general biological records to derive trends for a wider range of species groups.

Biological records represent a species detection at a known time and place; however, due to the unstandardized method of collecting the data, we are left with a very biased dataset. In the past, this has made the analysis of this form of data tricky. With the development of new methods to account for these biases as well as for imperfect detection of species, it is now possible to estimate robust trends for more species than ever before. This is reflected in the most recent SoN report which is now able to incorporate more species

Organisation	Number of species provided to SoN report	
Bees, Wasps and Ants Recording Society	18 ants 152 bees 98 wasps	
British Bryological Society	267	
Trichoptera Recording Scheme	76	
Ground Beetle Recording Scheme	84	
Centipede Recording Scheme	4	
Cranefly Recording Scheme	24	
Dragonfly Recording Network	39	
Empididae and Dolichopodidae Recording Scheme	46	
Database and Atlas of Freshwater Fishes	13	
Gelechiid Recording Scheme	56	
Orthoptera Recording Scheme	26	
Hoverfly Recording Scheme	153	
British Lichen Society	228	
Millipede Recording Scheme	5	
Soldierflies and Allies Recording Scheme	28	
Spider Recording Scheme	254	
National Moth Recording Scheme	33	





from more taxonomic groups than was previously possible, with biological records now underpinning around two-thirds of the quantitative trend analyses.

Working within the Biological Records Centre, we were uniquely positioned to be able to seek permission and collate data from various recording schemes and societies, and get to work on producing estimates of annual occurrence and trends in occupancy using these new methods. Although there are many more sources of data out there, deadlines meant that we could only include so many. 17 organisations provided data for the report covering 19 taxonomic groups (see table). With any luck, for the next report, this will be expanded even further.

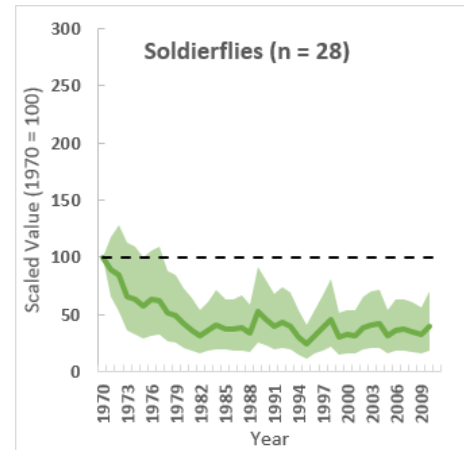
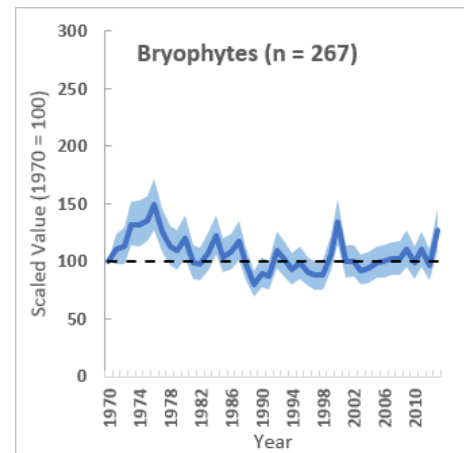
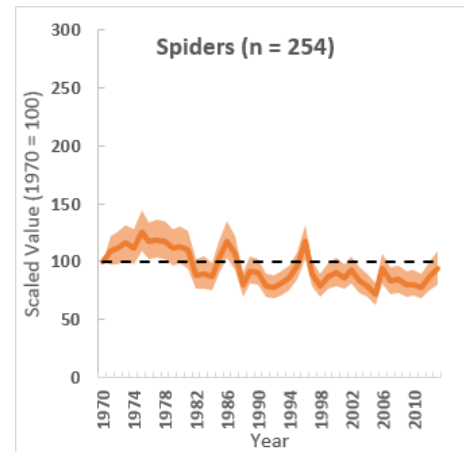
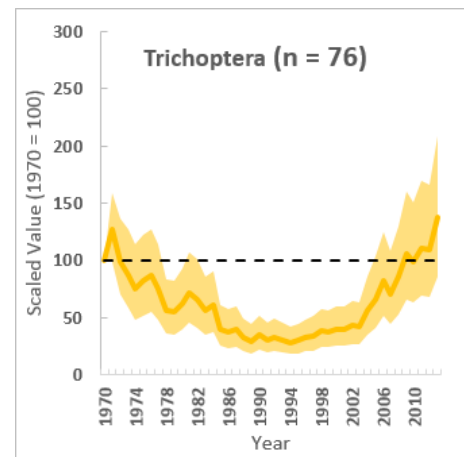
### The analysis

For analysis, the records need to be in a standardised format. Currently, we use unique records of a species from a known day at a 1 km grid cell precision. We use data from 1970 onwards as this is, very generally, when the numbers of records available starts to pick up. Any records that do not meet these criteria are either scaled up, if they are more precise, or dropped out of the final dataset. These choices are made to ensure that we have the greatest pool of data possible at as small a scale as possible.

We use Bayesian occupancy models to analyse the record based data. This type of model is ideal for analysing biological records data as it is able to account for imperfect detection. Imperfect detection occurs because the fact that we did not see a species, does not necessarily mean that it was not there, simply that we didn't observe it. Therefore, we need to account for the potential of false negative observations of species within our analysis of these data. If this is not done, we could underestimate the occurrence of species. In total, occupancy models were run for just under seven and a half thousand species. The models for each species were run by taxonomic group using a computer cluster with much higher computing power than a regular desktop. Depending on the amount of records in the dataset, the models could run for between a few hours to a few weeks!

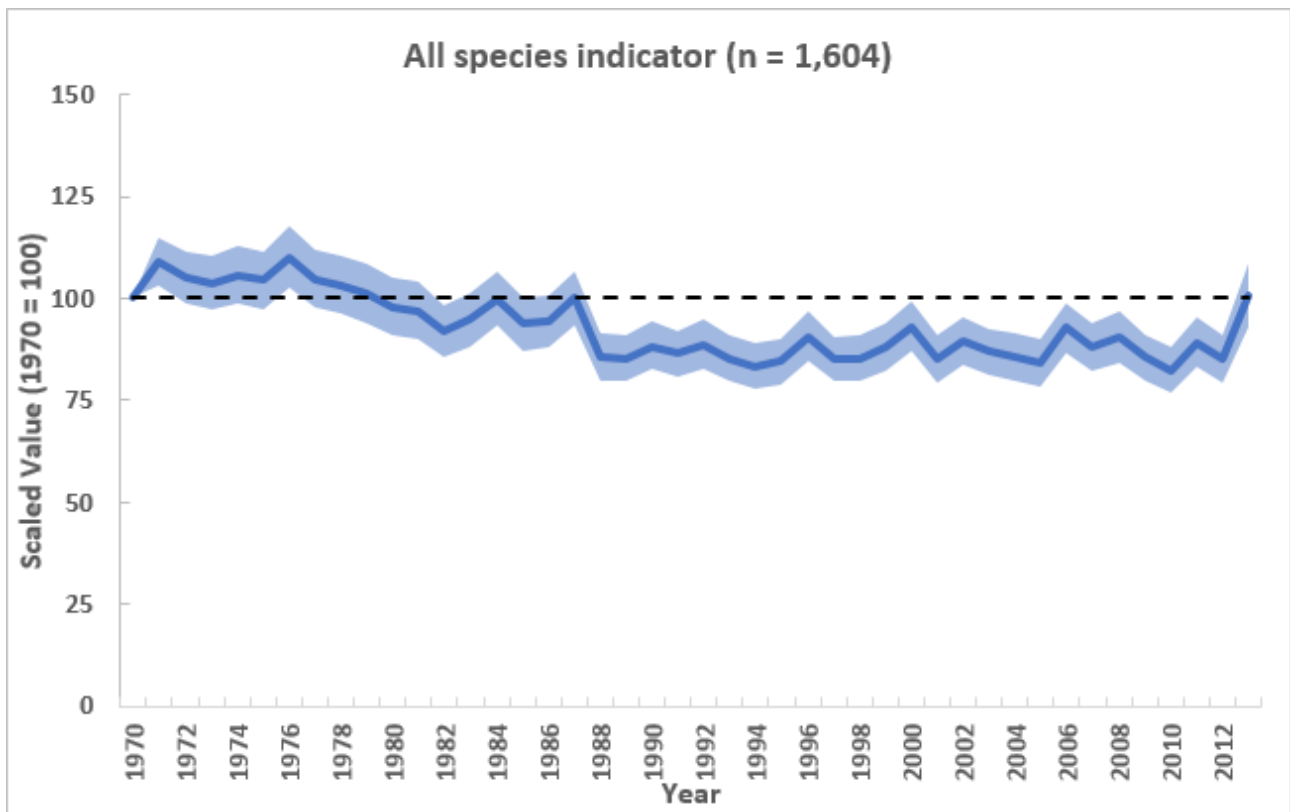
### The results

Unfortunately, robust outputs were not able to be generated for each species for which the model was run. Therefore, a number of checks were put in place to ensure only those outputs that we were confident in were taken forward into the SoN report. This, however, led to a reduction in the possible number of species that we could use, from the roughly 7,500 analysed to just 1,604 that could be considered reliable. I am



Indices of change in occurrence for 4 taxonomic groups 1970–2013 (n = no. of species contributing to each indicator)





Indicator of change in occurrence between 1970 and 2013 for all 1,604 species that produced reliable results

currently working on adapting the models so that they are better able to work for the instances that failed here so that we can further expand the species coverage of our model outputs.

Using the model outputs we were able to generate estimates in annual occupancy for each species. For the majority of species this was possible for the years 1970 to 2013. These were used to construct the index. We were also able to calculate long-term and short-term trends in occurrence for each species. These outputs were then combined with similar information from other datasets, such as for birds and butterflies, to be incorporated into the SoN report. The figures above show a selection of composite indicators showing the change in species occurrence from 1970 to 2013 for different taxonomic groups. The all species indicator includes the results for all 1,604 species which had reliable outputs.

Through the use of Bayesian occupancy models for the analysis of biological records, we have been able to broaden our understanding of UK wildlife, extending beyond the usual taxa. Without this form of data there would be very little information on many of the groups included here. It is a valuable source of information and it is great to see that it now has a place in large-scale analyses of biodiversity.

The **State of Nature reports** are available to download from the [RSPB website](#).



## News from ALERC



### Conference 2016

*In October this year, the annual ALERC conference was held in Birmingham, and was themed around innovation and opportunity. Deb Muscat, appointed as Manager of Cumbria Biodiversity Data Centre earlier this year, was attending her first ALERC conference and provided the following report.*

As the CBDC Manager for 9 months I was looking for an opportunity to:

- find out how LERCs are dealing with old and new IT
- understand what is on the LRC horizon to shape our next business plan and
- meet LERC colleagues who have helped me get to grips with my new job.

A conference titled Innovation and Opportunity seemed a perfect chance and what's more, it was affordable so all three CBDC staff could attend.

Kicking off with Rich Burkmar (FSC) demonstrating multi-access keys got our attention straight away. We had been discussing new tools to support Cumbrian recorders and here was a not-quite-but-almost ready made solution to one of our goals. Another goal is to encourage recorders to use iRecord but we have concerns about verification and Clare Blencowe's (Sussex BRC) Sussex experience gave us a useful insight.

As a recorder and data user the new Living Atlas is very exciting; as a manager it raises many questions. The afternoon sessions gave us more food for thought. We heard other LERCs sharing their experiences of alternative software, concerns about Recorder 6, and how LERC's can add value to data. We had plenty to talk about on the train home and much to consider back in the office.



Habitat mapping drone on display at ALERC conference  
(see NFBR News 52 for an article on this)

Everyone I met was keen to share experiences, knowledge and explore new ideas and opportunities. There was not quite enough networking time and I didn't put a face to every name that I hoped to. Even so, I had a great day, my objectives were met and I look forward to seeing everyone again next year."

*Presentations can be viewed on here: [www.alerc.org.uk/conference-2016.html](http://www.alerc.org.uk/conference-2016.html)*

### Other news

Both of the LERCs accredited under the 2011 pilot of the accreditation scheme (Lincolnshire ERC and Cambridgeshire and Peterborough ERC) were up for renewal this year, as accreditation can only last for five years. Renewal involves LERCs addressing any criteria they originally not addressed in the original submission (although all criteria are now mandatory) and resubmitting any documentation that has changed. Following on from CPERC's successful renewal this autumn, I am pleased to report that both LERCs are now fully accredited for a further five years.

Devon BRC also joined the ranks of accredited LERCs this autumn, taking the total up to 13. There are more planned for next year too. If you want to know more about the ALERC accreditation scheme, please visit [www.alerc.org.uk/alerc-accreditation.html](http://www.alerc.org.uk/alerc-accreditation.html)



# The Tom.bio ID Visualisation Framework

Rich Burkmar, FSC Tomorrow's Biodiversity project

The Tom.bio ID Visualisation Framework is a set of tools for creating and publishing interactive web-based identification resources, including multi-access keys. The framework developed out of the online multi-access keys we created in association with the Earthworm Society of Britain (see [www.tombio.uk/earthwormsv2](http://www.tombio.uk/earthwormsv2)) and Sally Hyslop when she was part of the NHM Identification Trainers for the Future project (see [www.tombio.uk/grassesv1](http://www.tombio.uk/grassesv1)). It came from a desire to use what we'd learned and developed to enable others to create their own ID resources.

The ID resources are driven by spreadsheets which represent taxonomic knowledge (knowledge-bases). If you can use Excel – or any other spreadsheet – and you have some knowledge of a particular group of animals or plants, you can create a taxonomic knowledge-base to drive these ID resources. You don't have to have access to a website to deploy your ID resources, you can run them locally on your computer. But you can, if you wish, deploy your resources to websites too. The framework contains all the tools and information you need to do this.

Once you have built your knowledge-base, you can use any of the existing Tom.bio ID tools (also called 'visualisations') to visualise and explore that knowledge. New visualisations will be added to the framework over the course of 2017 including the 'circle pack key' pictured below. Read more about the framework on the Tomorrow's Biodiversity website here: [www.tombio.uk/framework](http://www.tombio.uk/framework). You will also find videos there which help you to install the framework on your computer and get started on building your own knowledge-base.

The framework is an open-source project and the Field Studies Council is exploring ways in which it can continue to directly support the development of the framework beyond the end of the Tomorrow's Biodiversity project. If you'd like to discuss the framework or contribute your own ideas, contact Rich Burkmar: [richardb@field-studies-council.org](mailto:richardb@field-studies-council.org)

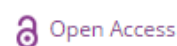
## Earthworm circle-pack test





## Recent research

- [Developing a biodiversity-based indicator for large-scale environmental assessment: a case study of proposed shale gas extraction sites in Britain](#) (Dyer *et al.* 2016)



Environmental impact assessments are important tools for predicting the consequences of development and changes in land use. These assessments generally use a small subset of total biodiversity – typically rare and threatened species and habitats – as indicators of ecological status. However, these indicators do not necessarily reflect changes in the many more widespread (but increasingly threatened) species, which are important for ecosystem functions. This paper describes a method for the assessment of biodiversity, which takes account of species diversity across larger spatial scales, based on occurrence records from 5,553 species across 11 taxonomic groups. It also develops a case study to investigate biodiversity status in regions proposed for shale gas extraction in Great Britain.

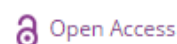
The results show a strong relationship between the ecological status of areas defined by all biodiversity versus only threatened species, although they also demonstrate that significant exceptions do exist where threatened species do not always accurately indicate the ecological status of wider biodiversity. Analyses showed large variation in ecological status across Great Britain; in total, however, 63% of hectads across Britain have suffered a net reduction in our biodiversity-based indicator since 1970.

- [Biodiversity – monitoring special issue](#)

“Connecting the Dots: Integrating Biodiversity Observations to Better Track the CBD 2020 Targets” is a special issue from the journal *Biodiversity*. A range of monitoring topics are covered, but the papers are not open-access. They include:

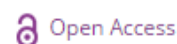
- Community-based monitoring and information systems (CBMIS) in the context of the Convention on Biological Diversity (CBD)
- The priority species indicator: measuring trends in threatened species in the UK
- Smart monitoring is key to achieving the Aichi Biodiversity Targets

- [Impacts of neonicotinoid use on long-term population changes in wild bees in England](#) (Woodcock *et al.* 2016)



Ben Woodcock and colleagues from CEH and FERA use data from BWARS to model wild bee distributions and relate changes to the use of neonicotinoid pesticides. Eighteen years of UK national wild bee distribution data for 62 species were related to amounts of neonicotinoid use in oilseed rape. Using a multi-species dynamic Bayesian occupancy analysis, evidence was found of increased population extinction rates in response to neonicotinoid seed treatment use on oilseed rape. Species foraging on oilseed rape benefit from the cover of this crop, but were on average three times more negatively affected by exposure to neonicotinoids than non-crop foragers. Our results suggest that sub-lethal effects of neonicotinoids could scale up to cause losses of bee biodiversity.

- [Is citizen science an open science in the case of biodiversity observations?](#) (Groom *et al.* 2016)



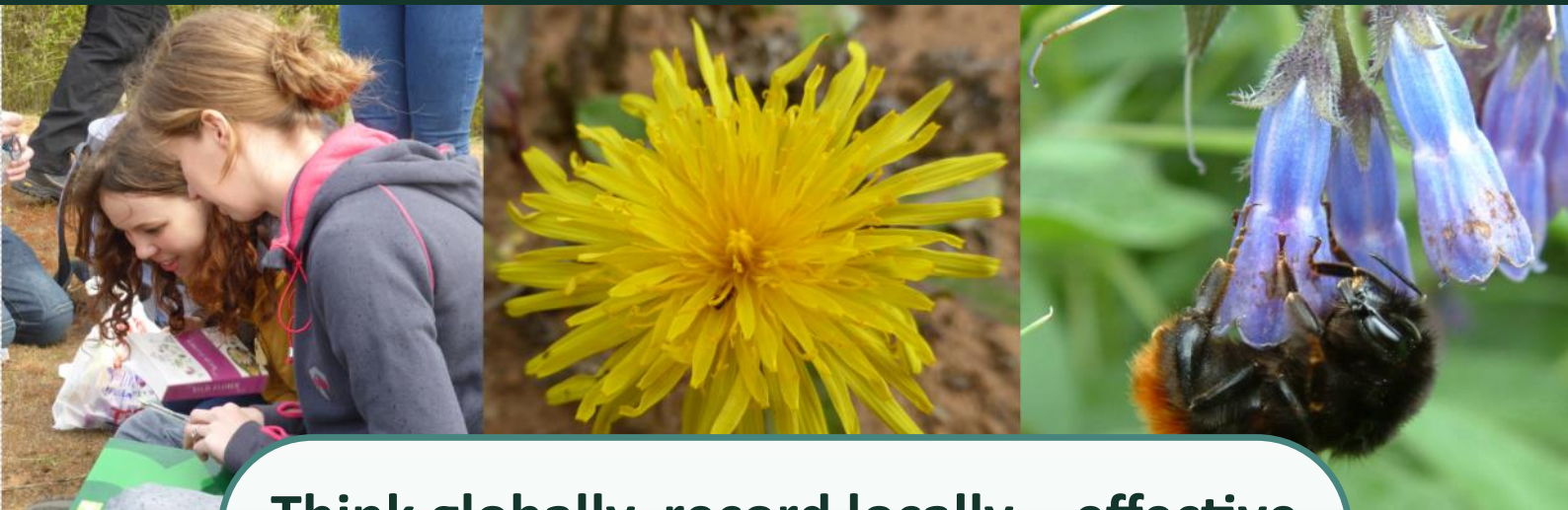
Quentin Groom and colleagues explore the openness of data contributed by citizen scientists and others to the Global Biodiversity Information Facility, and what the implications are for the different licenses adopted. Contrary to what many people assume, data sets from volunteers are among the most restrictive in how they can be used. Recommendations to improve data openness include that citizen scientists should be recognized in ways that correspond with their motivations, and that organizations that manage these data should make their data sharing policies open and explicit.





NATIONAL FORUM  
FOR  
BIOLOGICAL RECORDING

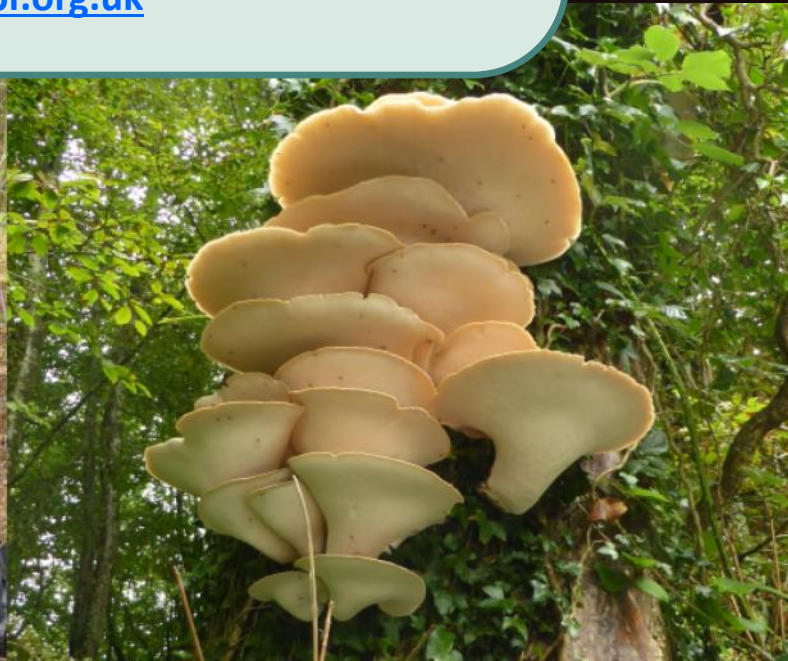
# NFBR Conference 2017



**Think globally, record locally – effective biological recording at the scale needed**

Plans are well-advanced for our 2017 conference:  
Nottingham, Friday 5 May, plus field trip on Saturday 6 May

Details and bookings will be via the NFBR website:  
[www.nfbr.org.uk](http://www.nfbr.org.uk)



**A unique perspective • NFBR • An independent voice**