NFBR

NATIONAL FORUM FOR BIOLOGICAL RECORDING

Newsletter 47 – January 2014

Don't miss the NFBR conference! Derby, 10–12 April 2014

Jacob's-ladder (Derbyshire's county plant) at Lathkill Dale. Photo © Nick Moyes

NFBR Conference 2014

Habitat – what is it, and why do we need to know?

10–12 April 2014, Derby Conference Centre, London Road, Derby, DE24 8UX

Conference aims:

- To explore what is meant by habitat, in a range of biological recording contexts.
- To examine current approaches to habitat-related species recording and monitoring.
- To consider whether current habitat recording is appropriate for the primary uses of biological records.

Thursday 10 April (starting at 2pm)

- Opening half day workshop on defining habitats.
- Conference dinner (cost £25).

Friday 11 April

Principal topics (talks to be confirmed):

- Understanding the ecology of habitat
- Recording and measuring habitat
- Interpretation and use of habitat data
- Discussion and round-up

Plus the NFBR Annual General Meeting (see page 5).

Jacob's-ladder, (Derbyshire's county plant) at Lathkill Dale.
Photo © Nick Moyes.

Saturday 12 April

Optional extra day: field meetings at two diverse sites in the Peak District (see details on page 4) – many thanks to Sorby Natural History Society for organising these.

Sorby
natural history society, sheffield

Please register your interest with the NFBR Secretary:

John A. Newbould, 3 Brookmead Close, Sutton Poyntz, Weymouth, Dorset, DT3 6RS
Email: johna72newbould@yahoo.co.uk

Delegate rates to be confirmed, but will be similar to the 2012 conference prices with a concessionary rate for students.

Accommodation costs are considerably lower than in previous years, and delegates are asked to book directly with the Derby Conference Centre reception, on 01332 861842.

Bed and breakfast rates for two nights, Thursday 10th and Friday 11th, are:

- Single: £40 per night
- Double for sole use: £45 per night
- Double or twin: £50 per night

For Thursday 10th only, bed and breakfast rates are:

- Single: £48
- Double for sole use: £50
- Double or twin: £55

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Editorial

Welcome to the 47th NFBR Newsletter, and apologies for its slightly late arrival - this is down to the editor, and not the fault of our authors, I hasten to add.

Preparations for our 2014 conference are going well, see previous page and below, and we hope to see as many of you as possible at Derby in April. The conference will include the first AGM of the renamed National Forum for Biological Recording, see the notice opposite.

This rest of this issue contains a richly varied mix of articles, reflecting the diversity of approaches to biological recording and the use of wildlife data.

We intend to get the next Newsletter out in July, so please get in touch if you have biological recording news, reports, articles or photos to share. Contact me, or share your views more widely via our email discussion forum, our Twitter feed, or on our Facebook page. And don't forget to check in to the recently-refreshed NFBR website.

If you're not already a member, please consider joining NFBR and helping our work to support biological recording for wildlife conservation.

Many thanks to all the contributors for this issue.

Martin Harvey, February 2014
editor@nfbr.org.uk

The **deadline for sending in articles for newsletter 48** is
1 June 2014

NFBR Conference 2014 – field trip details

See page 2 for the main conference details for 10–11 April. On Saturday 12 April there is the chance to join in with two field meetings, providing NFBR conference delegates with an excellent opportunity to explore the diverse habitats and wildlife of Derbyshire and the Peak District:

- "Mountain Hares, Oil Beetles and Red Grouse" - a visit to Derwent Moors led by Derek Whiteley, Sorby Natural History Society
- Sorby Lichen meeting to Brassington Rocks in Derbyshire led by Steve Price, Sorby Natural History Society

Further details of both meetings and how to book will be available on the NFBR website shortly.

Sorby
natural history society, sheffield

NFBR is very grateful to Sorby Natural History Society in Sheffield for organising these field meetings.

NFBR

NOTICE OF THE 1ST ANNUAL GENERAL MEETING OF THE NATIONAL FORUM FOR BIOLOGICAL RECORDING
Charity no 1152948

Notice is given that the 1st Annual General Meeting of the charity will be held at 13.15 hours on Friday 9th April 2014 at the Derby Conference Centre, London Road, Derby DE24 8UX

Agenda:

- Apologies for absence.
- Minutes of the inaugural meeting of the Charity held at the RNLI College, Poole on 19th April 2013.
- To approve the annual report and financial statements of the charity, prepared by the trustees (to be circulated).
- To elect three trustees to the Executive Committee, see below.
- Election of members to the Advisory Council of NFBR.
- Vote of thanks to retiring members.

ELECTION OF TRUSTEES:

The constitution requires three trustees to step down after year one, two trustees after years two and three. A rotation has been established by means of a draw. Clare Langrick is stepping down and will not seek re-election. In addition Paul Harding and Steve Whitbread retire by rotation and may seek re-election.

Clare Langrick our Membership Secretary and Treasurer will be one of those stepping down at the AGM and will not be seeking re-election. This is entirely due to maternal duties involving her child and the school run. With meetings in London, she is finding the travel from Hull onerous.

The trustees are therefore seeking a member who will manage the membership database and prepare the accounts. We have for some years used an integrated spreadsheet incorporating a cashbook and balance sheet, which has worked well.

A volunteer is urgently sort for this trustee post. Please contact the Chair, Graham Walley Graham.Walley@leics.gov.uk **or 0116 305 7063, if you are able to help.**

Trustees are required to sign a declaration before the election to say that they are not an un-discharged bankrupt; have a criminal record and over the age of 18. Any other person seeking to be elected as a trustee should contact the secretary John Newbould on johna72newbould@yahoo.co.uk for a nomination form. Potential trustees should download the document CC3 from the Charity Commission website to familiarise themselves with a trustees duties.

John Newbould, NFBR Secretary

NFBR: recent activities and how to be involved

NFBR exists as an independent voice for biological recorders, and is a registered charity charged with promoting biological recording and the use of biodiversity information to protect and conserve the natural environment. As well as organising conferences, websites, social media and newsletters, the NFBR Trustees and Council devote much time and energy providing input to various consultations and initiatives, often from national government. In this we aim to ensure that biological recording, and the people and organisations who make up the biological recording community, are represented, and that data and information on biodiversity is properly considered when making decisions that impact on the environment.

Over the last year NFBR has provided expert insight to:

- Local Nature Partnerships evidence requirements (Defra consultation)
- Terrestrial Biodiversity Monitoring Strategy (Defra consultation)
- Call for evidence: The ownership and governance of NERC centres (including the Centre for Ecology and Hydrology, home of the Biological Records Centre)
- Biodiversity offsetting in England (Defra consultation)
- Meetings of the All Party Parliamentary Group on Biodiversity (see also a report on the July 2013 meeting on environmental markets)
- Presentation at Linnean Society plenary "The Role of Museums and Collections in Biological Recording" (see page 15 of this newsletter)
- NFBR response to the 2013 *State of Nature* report
- Bilateral meetings to investigate opportunities and issues in biological recording with a range of partner organisations

Your support of NFBR is vital for us to make an impact on such consultations, and also to help keep us informed of the views of as many different parts of the biological recording community as possible. Membership of NFBR contributes to this, and anyone can add their views via social media sites or by writing in to us.

We also have some vacancies on the NFBR Council. Attendance at Council meetings is an enjoyable (mostly!) and worthwhile (always!) exercise, and gives you a chance to find out lots about what is going on in biological recording. Council meets three times a year, usually at the Natural History Museum in London. If you'd like to find out more about what's involved please get in touch with one of the existing Council members - see also the box below.

And can any NFBR member – young or old! – help us keep NFBR's Facebook page, Twitter feed and/or Google group regularly updated? If so, please contact Paula Lightfoot, Steve Whitbread or Martin Harvey for more information.

Our current **Membership Secretary and Treasurer**, Clare Langrick, will be stepping down at our AGM in April due to work and family commitments. The trustees are therefore seeking a member to manage the membership database and prepare the accounts. We have for some years used an integrated spreadsheet incorporating a cashbook and balance sheet, which has worked well.

A volunteer is urgently sort for this trustee post. Please contact the Chairman Graham Walley (Graham.Walley@leics.gov.uk or 0116 305 7063) if you are able to help.

Many thanks to Clare for her immaculate management of NFBR's finances over the years!

News updates

compiled by Martin Harvey

Biological Records Centre – 50th anniversary

The Biological Records Centre is celebrating its 50th anniversary in 2014. A major part of the celebrations will be a conference to be held in Bath on 27–29 June. Full details will be available on the BRC website soon.

Award for OPAL tree health survey

The OPAL tree health survey has been recognised at Defra's annual Team Awards, winning the department's Civil Service Reform Award.
The survey was developed last year by OPAL partners working with the Government agencies Fera (the Food and Environment Research Agency) and Forest Research.

The project was praised by Defra as a "unique, highly innovative partnership". Thousands of people across the UK signed up to take part and survey the health of trees in their neighbourhoods, while checking for evidence of potentially harmful pests and diseases.

Roger Fradera, OPAL Portfolio Manager, said: "We felt really honoured just to be nominated for the award; to win was well beyond our expectations but it is a real credit to everyone that was involved in the OPAL tree health survey. That includes our partners who helped us develop the survey, various experts from organisations passionate about trees, all the OPAL staff across our network, and in particular, the members of the public who gave up their time to carry out the survey spotting invasive pests and diseases that are such a threat to our natural heritage."

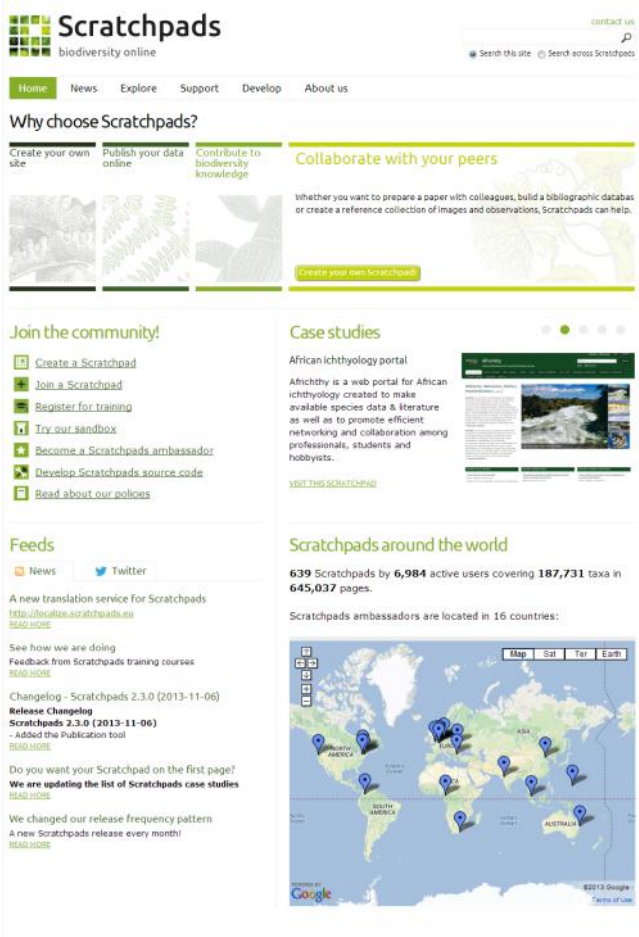
OPAL and Fera staff accept the award from Sir Bob Kerslake, Head of the Civil Service (far right)

NFBR Awards for biological recording

NFBR would like to establish a series of annual awards, to provide recognition to individuals and/or organisations that have made an especially significant contribution to biological recording in the current year. Watch out for further announcements on this at our April conference, but in the meantime if you have any suggestions for what the award criteria should be please get in touch – most significant species discovery? services to data entry? – biological recording in education? – volunteer of the year?

Scratchpads – an online platform for biodiversity data

Laurence Livermore, Digital Analyst, Natural History Museum



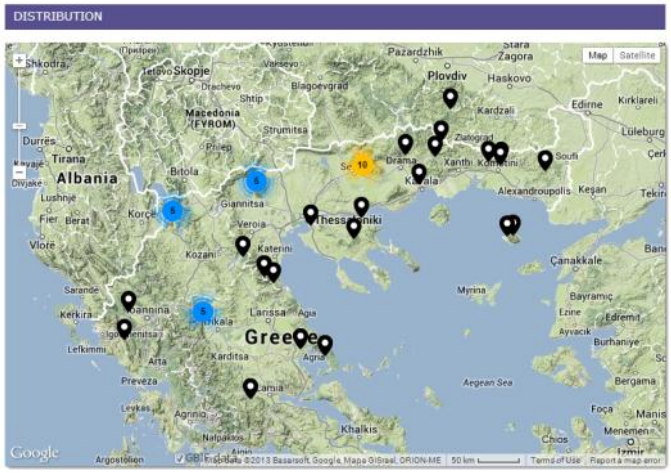
The home page of Scratchpads where you can get your own site, sign up for training and look at examples of usage

Scratchpads (http://scratchpads.eu/) is an open source and free to use platform that enables amateur naturalists, citizen scientists and researchers to work in a collaborative online environment. With a Scratchpad you can easily create a website to structure, manage, link and publish biodiversity data.

Scratchpads store all kinds of biodiversity data from taxonomies, media and literature to structured species descriptions, biological observations, morphological and ecological traits, and more. These data are connected through workflows and enable users to share and link information with all the major biodiversity repositories including: Encyclopedia of Life (EOL), IUCN Red List, the Global Biodiversity Information Facility (GBIF), Biodiversity Heritage Library (BHL) and the Bibliography of Life. An extensive suite of communication tools, including forums, blogs, newsletters and content feedback allow users to nurture and sustain vital online discussions with their peers. With the new publication module users can formally publish their Scratchpad data in Pensoft's Biodiversity Data Journal.

As of December 2013 there are over 600 Scratchpad communities created by over 6,900 users world-wide with more than 640,000 pages of content. These Scratchpads are used for many different purposes including:

- **Regional faunistic and floral treatments**: Fungi of Great Britain and Ireland is a resource for identification of British fungi (http://fungi.myspecies.info/).
- **Journals and news groups**: The Journal of the European Mosquito Control Association uses a Scratchpad to manage and promote their online journal (http://e-m-b.org/)
- **Invasive species resources**: Antkey is an ID guide and resource to introduced ants from around the world. It has keys, many images and a comprehensive glossary of terms (http://antkey.org/).
- **Conservation assessments** – The Sampled Red List Index for Plants is maintained by RBG, Kew and contains Red List conservation assessments (http://threatenedplants.myspecies.info/).



A distribution map based on specimen records

An example species page from antkey.org showing the taxonomy browser, nomenclatural information, images and a description

Key Scratchpad features include:

- Dynamically generated taxon/species pages from taxonomically "tagged" content
- Store and manage many types of data including: bibliographic, species descriptions, specimen records, character matrices (for keys) and media
- Export and share data with aggregators such as NBN and national recorders
- Tools to manage biological classifications
- Formally publish your data with the Biodiversity Data Journal
- Easily bulk import and export data in different formats including Excel spreadsheets and Darwin Core Archive.

Scratchpads are developed and supported by the Natural History Museum, London, and are a major part of ViBRANT (http://vbrant.eu/), an EU-funded project that supports the development of virtual research communities involved in biodiversity science.

To sign up for a Scratchpad visit http://get.scratchpads.eu/

The new *Biodiversity Data Journal* from Pensoft Publishing, mentioned in the above article, is "a community peer-reviewed, open-access, comprehensive online platform, designed to accelerate publishing, dissemination and sharing of biodiversity-related data of any kind."

So far it carries a range of worldwide taxonomic papers, as well as articles on data management and software developments and other taxonomic tools. For example:

- Baker E, Rycroft S, Smith V (2014) Linking multiple biodiversity informatics platforms with Darwin Core Archives. *Biodiversity Data Journal* 2: e1039.
- Jones T (2013) A visual identification key utilizing both gestalt and analytic approaches to identification of Carices present in North America (Plantae, Cyperaceae). *Biodiversity Data Journal* 1: e984.

The Scottish Biodiversity Information Forum (SBIF)

Christine Johnston, Scottish Biodiversity Information Forum Co-ordinator

The SBIF was established in June 2012 following on from an e-petition to the Scottish Parliament in 2008 that called for the development of an integrated approach to the collection, analysis and sharing of biological data in Scotland. The SBIF's aim is to benefit biodiversity by improving the flow of biological information between organisations and individuals that collect data, and users of that data.

To achieve these aims the Forum has established a Steering Group, a Data flow and data sharing Sub-Group, and a Commercial interests Sub-Group, and since March 2013 a part-time Co-ordinator has been employed to support the work of the Forum.

Action Plan

During 2013 the SBIF published its first Action Plan, which in summary contains seven actions:

- Action 1: Finalise the SBIF Vision
- Action 2: Pilot a model data pathway
- Action 3: Survey the data needs of the SBIF community and consider the information
- Action 4: Prepare and promote statements of best practice on data sharing
- Action 5: Produce and promote standardised data collection and sharing protocol
- Action 6: Compile and disseminate case studies that illustrate good practice and the value of data gathering and sharing for conservation and management in Scotland
- Action 7: Encourage LRCs to carry out a gap analysis on their data holdings and to identify if data available through the NBN Gateway can fill the gaps

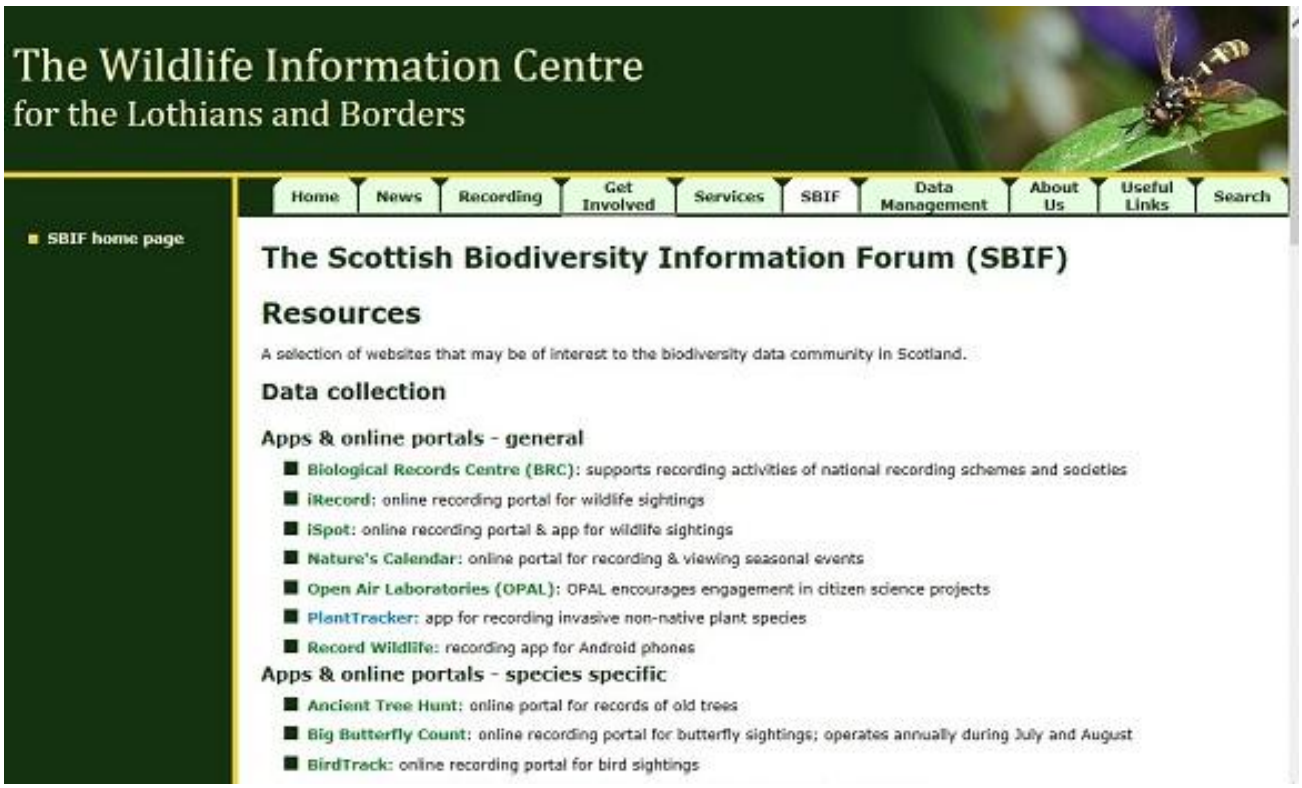
These actions are seeking to address some of the issues that inhibit the flow of biodiversity data in Scotland. Their delivery is being led by SBIF supporters and we are currently working on a delivery schedule. Delivery will involve cross-sector collaboration within the Forum to ensure the needs of all sectors are being met and a collaborative approach should enable the Forum to build on existing initiatives. Action delivery will ultimately lead to the mobilisation of more data.

Action 1 is now complete and the Steering Group approved the following vision statement at the end of July 2-13: *High quality species and habitat data will be collected and managed through a sustainable, co-ordinated and integrated local and national framework of organisations, partnerships and initiatives. These data will be available to ensure that Scotland's biodiversity, ecosystems and people benefit.*

The rest of the actions are underway and details about how they are progressing can be found on our web pages. Of note though are:

- Action 2, piloting a model data pathway, which is being developed in collaboration with the NBN Trust. Understanding and improving the routes by which data is made available and accessed is seen as fundamental to mobilising more data.
- Action 6, the compilation of case studies. Four case studies, one each from the local authority, marine, academic research and public sectors, have been commissioned to illustrate the importance of biodiversity data. We will be disseminating them widely later this year.

If you would like to get involved with the Forum, or would like to be added to our contact list, please contact:
Christine Johnston, SBIF, The Wildlife Information Centre, Caretaker's Cottage, Vogrie Country Park, Gorebridge, Midlothian, EH23 4NU. Tel: 01875 825968.
Email: sbifcoordinator@wildlifeinformation.co.uk
Web: www.wildlifeinformation.co.uk/SBIF.php
Twitter: SB_Info_Forum



Communications

The SBIF has also been developing its communications plan and in 2013 established some new web pages and a Twitter feed (see box on previous page for links). Please refer to the web pages for more information about the background to the Forum, the work we do, updates on the progress with individual actions, information about the different sectors of the data community, and a list of resources of relevance to biodiversity data handling.

Book reviews

- Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S., and Fuller, R.J. 2013. ***Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland***. BTO Books, Thetford. Hardback, 720pp. ISBN 978-1-908581-28-0.

'Citizen science' has been one of the most-used phrases of recent times, but the British Trust for Ornithology have shown that they are now, after 40 years, masters in the mobilisation of large numbers of people into one of the most important published pieces of citizen science out there.

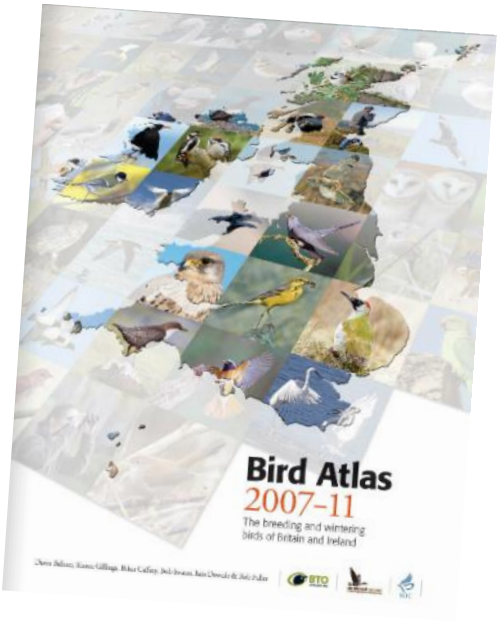
Over 17,000 volunteers contributed birdwatching time to provide the data to produce this magnificent book, the culmination of 4 years of fieldwork and significant amounts of prior planning.

Previous bird atlases, published following fieldwork in summers 1968–71, winters 1981–4, and summers 1988–92, provided a wealth of information on avian populations across the British Isles, and confirmed the UK's place at the top of the league in structured, large scale population surveys which actually provide valuable, scientifically valid data on bird populations; distribution, abundance and by the 20 year repeat in 1988–92, an element of change.

Forty years after the first attempt to atlas the British avifauna, I feel that the BTO have surpassed themselves, both in volunteer participation and in providing a further assessment of population changes of both wintering and summering birds across the British Isles with this publication, the first time that all species wintering or summering are featured in the same book. With both distribution and abundance addressed, plus an assessment of population and distribution change, there is a huge amount to take in for each species, with a very readable, succinct text for each species too. Do not expect in depth identification or behavioural notes here, there are copious other sources of those.

The opening chapters detail the complexity of mobilising volunteers (the majority amateur birdwatchers, and many who would probably not class themselves as particularly expert) into the project. Volunteers were asked to gather a lot of data in a structured timed-count method, which is the backbone of determining abundance data, and also encouraged to look for breeding evidence through observing bird behaviour, something which I am certain a lot of birders had probably never thought about in a particularly structured way before. Abundance data needs a structured data gathering basis, but to get that through so many volunteer observers has to be one of the unsung achievements of this project, one which, as it was trialled in the summer atlas 20 years ago, now enables a real measure of abundance change in addition to the distributional changes mapped out in the species accounts section. There is a lot of science behind the change maps, which as one of the amateur birding volunteers I cannot begin to fully understand, and this is also discussed in the first part of the book.

Some may think that the introductory chapters overdo the organisation, and data gathering, but I feel it is one of the vital things to be taken on board from the project – it certainly would have taken longer and cost more to do it any other way, and it is vital that this message is put across as part of the publication. The difficulties of covering more remote or less populated areas are also addressed, and the BTO had two strategies for this. One was to subsidise a few volunteer expeditions such as to north-west Scotland in midwinter – as a participant on one of those I have to say that it puts even the bleakest hour of bird-counting in the arable Cambridgeshire fens into perspective, and an hour recording only one or two individual birds in the Scottish hills certainly brings an appreciation of a handful of Blackbirds, Robins, Chaffinches and Woodpigeons in the fens.



However, when I received my copy of the atlas, I have to confess that I first went to the species accounts and maps section – time to worry about the minutiae of the project after a first big gaze at randomly opened map pages. The format is substantially larger than A4, and even on this large page-size, one of the perceptions, with resident species, is of it being a little too crammed. But there is really no other way to distil all of the wealth of information into that space.

My main criticism of the maps is the choice of colour on the change maps – the sliding scale from red and orangey-pink to a funny browny-green colour is not easy to analyse on the maps as printed, and for the colour-blind I suspect even worse. I also think that the scale runs the wrong way – it is natural to think of a scale from red to green or brown as meaning red is worse – however, here it means the biggest positive change – a period of training the thought-processes is needed. I feel that a bolder colour-scheme may have benefitted

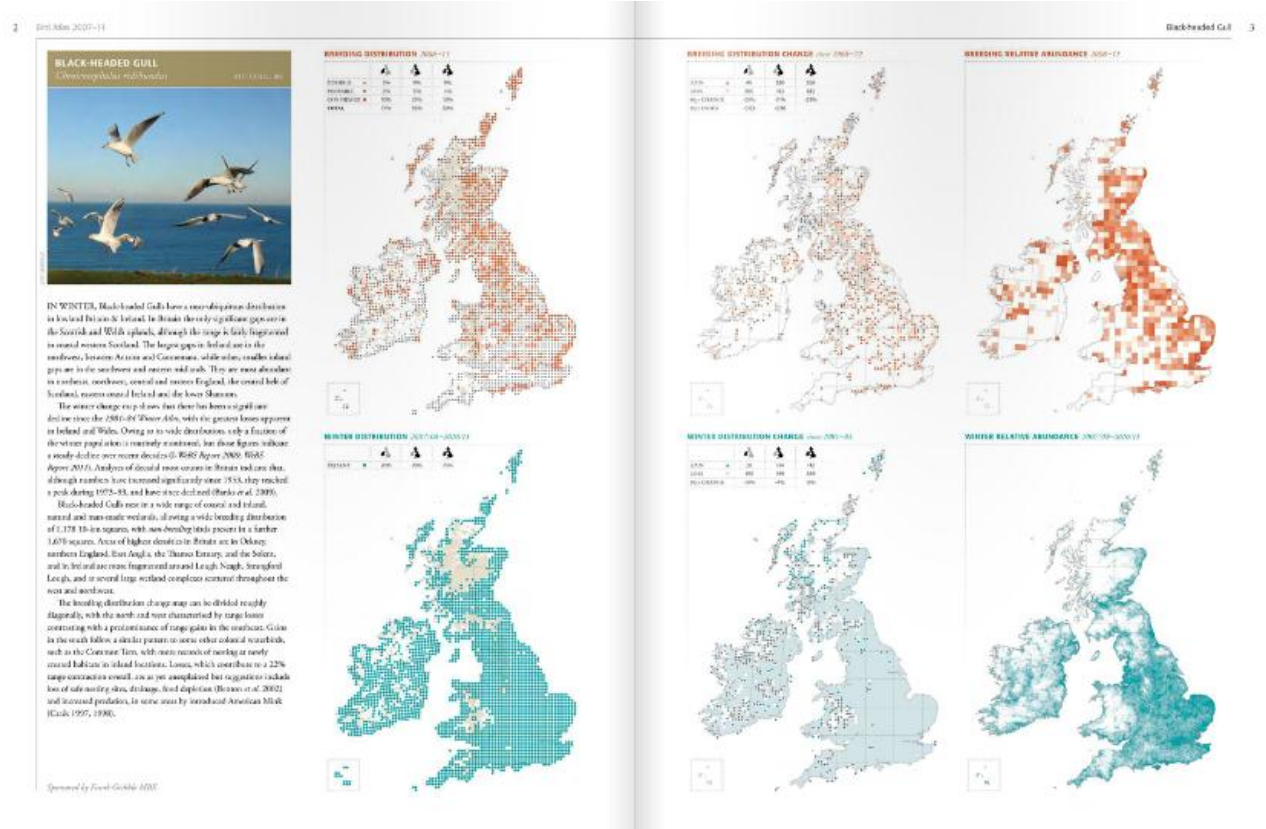
these maps, but at least all of the maps are consistent throughout the book, and the key to each type of map is conveniently printed on the inside front and back covers, for easy cross-reference. Winter and summer distribution is much clearer, and the maps of breeding proof, with the standard different-sized dots, are easier to follow, although the possible breeder as a small red dot is far too similar to the same-sized dark grey dot for non-breeder.

The abundance maps are much clearer – in red or blue for summer or winter, with density of colour implying abundance. It is easy to see watercourses under swans or ducks, for instance, and these maps do have most impact with commoner species. For instance, comparing the distribution maps of something common like Blackbird or Chaffinch the country has a uniform appearance of dots, but the abundance maps show up far more effectively those parts of the country where a species commoner or only thinly distributed.

Apart from making sure you have a magnifying glass to hand for the maps, the atlas is well produced, and a pleasure to browse through. I could not imagine sitting down to read it from cover to cover, it is a resource to dip into, or refer to for specific reasons. Mostly, it actually shows the value of structured, repeat survey work, of utilising a large volunteer task force, and above all, shows that data is certainly not dull if presented in a graphical and understandable format.

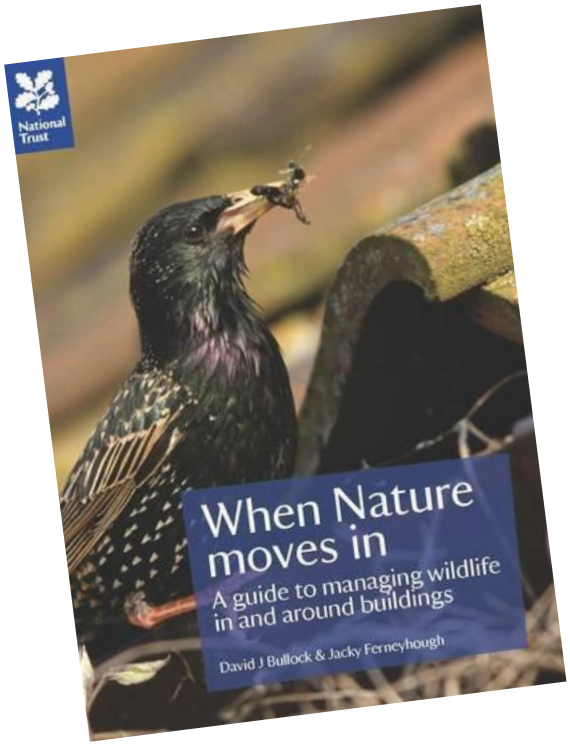
Anyone who loves maps, birds or just a wider appreciation of the wealth of birdlife in the British Isles will get a huge amount from this book for years to come, and here's to the next 20-year repeat, to document the further changes for both good and ill, in our avifauna.

Review by Louise Bacon, NFBR Council member (and BTO atlas organiser for Cambridgeshire, Huntingdonshire and Peterborough, 2008–2011)



- David J. Bullock and Jacky Ferneyhough. 2013. ***When Nature moves in – a guide to managing wildlife in and around buildings***. Paperback, 68pp. ISBN 9780707804255.

Council members Mike Edwards from Dorchester and John Newbould from Weymouth are both National Trust volunteer wildlife surveyors. We had an opportunity to join in a staff training day at Tyntsfield, Bristol, to see how building surveyors and ecologists managed the issue on the National Trust's estates. Our reward was to receive a free copy of this comprehensive guide to wildlife and buildings.



The book covers planning work on buildings, including statutory protection of wildlife, and the regulations concerning the development and protection of buildings, including advice on building materials, and improvements, especially on older properties, which have greater opportunities for wildlife. The book advises against breathable roofing membranes especially where bat roosts are involved. Beetles, which attack both soft and hard woods, are highlighted and also wood boring species invading untreated timber. It advises on nature's response to damp problems e.g. the presence of ferns. It highlights the damage, which can be caused by woody species. Many of the training participants did not realise the potential damage which may be caused by sapling trees on banks with a retaining wall. The list of potential problems can appear endless with the mason bee *Colletes daviesanus* attacking mortar.

Part II covers wildlife species and how to deal with them. Those of us involved in biological recording immediately think of bats. However, a serious pest in older properties may be a rodent, especially where catering is offered. The book points out the hedgehogs may seek shelter under a garden shed and also draws attention to water voles, mink and otter in canals. Advice is given on looking for signs, when to intervene and when to call in an expert. There is a whole chapter on birds ranging from black redstarts to feral pigeons; peregrine falcon to swifts, for example. The book advises on creating new homes for birds and maintaining an insect rich garden around the house and also provision off winter-feed.

There is the inevitable chapter on amphibians and reptiles and importantly when to call an expert. The chapter on insects is not as long as I expected and the one on fungi is quite short. The chapter on plants and trees covers most of the issues, although the case study on the day involved ivy and in particular the issue of ivy damage to the estate's slaughterhouse. Should it be saved? There is also a chapter on lichens. We found this quite interesting as Tyntsfield, being so close to Bristol, appeared to be quite a lichen desert compared with west Dorset, which is relatively unpolluted.

If your work involves advising on building conservation as well as nature conservation this is a good £10 well spent.

Review by John Newbould, NFBR Council member

The Role of Museums and Collections in Biological Recording

© Natural History Museum, London

Museums, natural history collections, volunteers and biological recorders share many common interests, but how can we develop strong links between them and ensure they support each other? This was the subject for debate during an Open Plenary Session of the Linnean Society's Taxonomy and Systematics Committee, held at the Linnean Society in London last September.

The meeting, with some 70 participants, drew on the experience of The Tullie House Museum in Carlisle and the Angela Marmont Centre for UK Biodiversity at the NHM (Natural History Museum) as well as the NBN (National Biodiversity Network) and NFBR to debate how museums can more effectively engage with recorders and taxonomists for the benefit of all. Sue Townsend (Field Studies Council) and Keith Porter (Natural England) chaired the meeting.

Natural science collections have a lasting and irreplaceable value and are highly relevant when defining national biodiversity and conservation goals today. By housing type specimens, vouchers and reference material they are a resource that enables recorders to produce more accurate and reliable data. However, funding for museums is at a critical point, with cuts, closures and the loss of curatorial expertise jeopardizing appropriate care for collections and access for researchers. Without overt use there is a very real possibility that natural science collections will be lost, to the detriment of all.

The 'Key Conclusions' from the day were summarised as:

- Case studies clearly demonstrate the benefits of a close relationship between museums and recorders in securing greater accuracy when determining biodiversity.
- Museums want to be used and Recorders want to use museums.
- But need to improve links with recorders and promote museum use (turn the vicious circle into a virtuous circle).
- Opportunities may now be arising to get better recognition of (and therefore funding support for) museum collections in relation to biodiversity and recording.

A full report of the meeting, with summaries of all the presentations, can be downloaded from the Linnean Society website.

The LINNEAN SOCIETY of London

Debate: consultant ecologists, LRCs and biodiversity data

At the National Biodiversity Network (NBN) conference in November 2013, Lisa Kerslake, Director of Swift Ecology, gave a thought-provoking presentation highlighting concerns over current mechanisms for consultants' access to biodiversity data. We wanted to take this discussion further, and invited Lisa to carry on the debate with Nicky Court, the current chair of the Association of Local Environmental Records Centres (ALERC) and manager of Hampshire Biodiversity Information Centre (HBIC) - thanks to both for agreeing to take part.

Full details of the conference and all the presentations are available on the NBN website, and the presentation by Lisa that sparked off this debate can be downloaded here (2MB PowerPoint file).

Lisa Kerslake: the issue for consultants

Lisa Kerslake speaking at the 2013 NBN Conference

As an ecological consultant undertaking background data searches for protected species, there are two key issues that I feel need urgently to be addressed: the ease with which it is possible to obtain data, including charging issues; and the usefulness/relevance of the data available.

Theoretically there are several sources of such data: the NBN gateway, local environmental records centres (LRCs), local groups such as bat groups, and national schemes and societies (NSSs). Clearly, this is an issue in itself, in that not all the information is in one place. However, quite apart from that, at present there are no real mechanisms by which, even if they wanted to, national schemes and societies could share their data directly; and data from the NBN is not useable for commercial purposes without the written permission of all the data providers, which, in reality, is not a practical proposition. In other words not all the data available are being accessed and used; and at the present time, for all practical purposes, such data are normally only obtainable from LRCs and local groups.

As for the data that are available, the following problems are frequently encountered:

- Data being spread across different bodies (e.g. the bat group, the badger group, and the LRC); this is further compounded for cross-county-boundary searches. This not only makes the whole process very unwieldy and time consuming, it also adds significantly to the cost.
- Full charges for searches that result in no data returned. I fully appreciate that the charge is for the time taken and not for the data, but there must be a workable solution to this.
- A search consisting of pages and pages of species lists in no sensible order and including records of no practical use e.g. "bat", "pigeon" resulting in considerable time needed to extract the useful information.

Technology is available ... yet there seems to be no move towards this as a solution?

It is recognised that these problems are not universal and that great improvements have been made recently to the service provided by many LRCs. However, because the system is not integrated the effects of these improvements are limited; the LRC in Lancashire might have a perfect service, but it cannot give me data for Kent (or vice-versa – no judgement implied for either area!). Technology is available that would enable me to log onto a website, choose what I want, pay online, and get it downloaded direct; yet there seems to be no move towards this as a solution?

Nicky Court: LRCs working with local groups

LRCs are working tirelessly with local species recording groups to encourage them to contribute their data to the LRC so that it can be used to inform planning decisions. ALERC can do more to work with the national groups to encourage their local members. At HBIC we increased the cost of our hourly fee by 20% so that we could pass on that % to the species groups to offset any loss in income and to allow them to get on with what they do best – recording. This small increase in our fee saved consultancies greater costs and importantly time by not having to go to several groups each time.

Cross-boundary searches are a tricky one that has been discussed many times. HBIC has five surrounding counties. For us to be a 'one-stop shop' for searches that crossed the county border would mean we would have to update our databases at least once every year with 'buffer' data (species, habitats and Local Wildlife Sites) from the neighbouring five LRCs (and vice versa). Timewise this could not be justified, particularly as we get less than a dozen such request a year (out of 600+), and the requester would still have to go to a particular LRC if they wanted to follow anything up, or to check for the most recent data. The ideal solution would be to put everything on the NBN Gateway at the full resolution available, along with designated boundaries, priority habitat boundaries etc., and for the LRC to receive full core funding to make it happen, but we are a long, long way from that scenario, and not all data providers would be happy with it.

Where a search is carried out and no data is found I think the best solution is to not charge for nil returns and absorb the costs within the charging schedule (which is what HBIC and many other LRCs do). Some nil returns are done over the phone particularly for householder applications and take just 10 minutes to search the database and log the request.

LRCs work with local species recording groups to encourage them to contribute their data

As to the reports that are presented, the data requester does need to be clear what data they wish to receive and to give feedback if it is not what they want. For species data HBIC tends to only give records which have a 'notable' status, and then in taxonomic/alphabetical order, unless requested otherwise, and in a format that it can be sorted if necessary. Further data in the form of detailed site surveys can also then be made available. Having looked at the feedback from the recent ALERC/CIEEM survey I am sure there is enough detail to inform a future ALERC workshop on ways that we can all be more consistent in the way we provide/charge for data. One example of LRCs working together to common standards is in the East of England region, where a Standard Data Enquiry Service has been agreed, and a report on Improving and Standardising Data Enquiry Services has been produced. But it is important to stress, particularly in the current climate, that many LRCs are regarded as a discretionary service by our supporting local authorities and we have to fully cover our overheads – which will vary across the UK according to the LRC's hosting structure.

A UK web portal for data requests is something for ALERC to think about. However, we cannot easily get around the variability in data coverage/quality and our costs/ overheads, just as consultancies can't. We can only work towards improving consistency and quality of data and service.

LK: consultants supplying data to LRCs

Nicky, your comments are welcomed and helpful, and I appreciate that a lot of work is going on and that record centres are very vulnerable to funding cuts. It's good to know that HBIC has a sensible approach to the provision of data, but as you note, this approach needs to be more consistent across LRCs in order to address the concerns, which are fairly widespread even if they do not apply to all.

I am particularly pleased to see the example of passing on a percentage of the hourly charge to species groups. I would very much like to see this approach used by all LRCs, and extended to apply to other data providers in some form, not necessarily via payment, so that there is more incentive to supply records, including those gathered by consultants. On this issue it has long been a bugbear of mine that many consultants do not supply their records to LRCs (or indeed anywhere). From my own experience and from the comments made in response to the ALERC questionnaire to CIEEM members, it's clear that there is a widespread problem here, and that there are three main reasons usually given: that it is complicated and time consuming to do so; that there are confidentiality issues with client data; and that there are no incentives to do so .

To take these in turn, I believe work is currently going on to develop an online mechanism which should make the whole process of submitting records simpler and easier. So I am hopeful that this particular constraint will soon be dealt with.

The issue of confidentiality of client data is frequently cited, but in most cases it is manifestly nonsense and the solution is actually very simple. Consultants can include a clause in their terms and conditions that says they will supply your data to the relevant body unless asked not to. In over 6 years of running a consultancy, I have only had one client ask me not to supply his data, and that was only a temporary concern until he received his planning permission. If you put the obligation on the client to make the effort to opt out in the first place – rather than leaving it so you have to ask them – then in most cases they will not question it. I therefore view this particular reason as largely spurious and fear it may be in some cases an excuse to avoid having to make the time and effort. It is also a useful argument that Natural England (NE) expect licence holders to supply their data to the LRCs as a condition of their licence; a client can't argue with that, and it's a pity that local authorities don't also do this as a condition of the planning permission. I see no reason why they could not do so.

We really have no basis for complaint if we are not providing our own data to help address this

As another incentive, I do not feel it is unreasonable for consultants who are consistent suppliers of data to receive some sort of incentive – it could be a very simple matter of a small discount off future data searches, or a free express service; obviously criteria would need to be established so that it is not taken advantage of, but it is surely feasible. As a regular data provider, it is galling to be charged, as I have been on more than one occasion, to have my own data – and only my own data – returned to me. I know this is an extreme example, but I am not alone in this experience.

In summary then I feel that in some cases consultants have a valid point. However, in terms of frequent (and often justified) gripes about poor quality or lack of data from LRCs, we really have no basis for complaint if we are not providing our own data to help address this. The LRC cannot supply it if they don't have it.

NC: solutions and work in progress

Yes, the online route for consultants' records should be a step forward, particularly as it has been designed by consultants for consultants, but it will still rely on the national schemes and local county recorders to ensure that this data is verified and made available to ensure it gets used to inform future developments as well as contributing to the 'bigger picture'. LRCs are well placed to encourage and support this process as they are already doing so with data being entered through iRecord and other online systems.

HBIC, and I suspect many other LRCs, rarely receive data gathered through NE licences so this is something we need to work on with NE and others with regard to planning conditions. It took several years of negotiations between LRCs and NE just to get bat

data released to both us and our local bat groups via BCT from 'NE' roost visits, despite the fact that it was local bat group volunteers making the roost visits!
HBIC rarely gets passed data from consultants (unless they are also a member of a local species group) so we have not yet been asked to provide a discounted rate. However, data that is passed to an LRC carries a financial cost to the LRC in terms of time managing that data – such as ensuring verification with its local groups and appropriate national scheme, entering the data into its database or GIS etc. As I mentioned earlier all aspects of a records centre's workload have to be covered financially. The incentive should be about getting the data back out, preferably with other data about an area whether it be designated sites, priority habitats and other notable species records, in order to provide as complete a picture as possible to a data requester.

Nicky Court working with recording groups at the New Forest Bioblitz

Offering a discounted rate is something ALERC can discuss with our member LRCs, and I am currently exploring offering a discounted rate to regular users of HBIC perhaps though a yearly subscription or SLA, with an express service, and with savings on all the administration, invoicing etc. We have been approached by several companies with regard to this and receiving data from them on a regular basis could be part of the mix.

In your presentation to NBN you listed potential solutions to some of the issues we've been discussing. Many of these (such as those discussed above) are being progressed, including accreditation so that all LRCs are working to agreed standards. Filtering data so that only records of notable species are provided, and in a flexible format, is something that all LRCs can do and, I think, they just need to be asked. Action on poor practice is something that the ALERC board will need to discuss in terms of procedure and resources. All LRCs are run by a steering group or board of trustees comprised of funding partners and data suppliers and so it should be possible in the first instance to raise any concerns a consultant might have with that authority.

With the current austerity measures most LRCs are being asked to more fully cover their costs or do 'more with less'. Ultimately it will be down to government to decide if it is really serious about stopping the decline in our habitats and species – for which a good evidence base is needed. There are many, many local authorities who do not support their local records centre (and probably do not even employ an ecologist) and one wonders how they can make decisions with so little evaluation of the natural environment to which the decision might have an impact. Relying solely on developers' reports, which can only be one brief snapshot in time of a limited number of taxon groups, misses out the local knowledge of trends, context, site history etc., all of which could be provided by their LRC.

One of NFBR's vision statements is that, in future, "Enhanced accessibility ... will ensure that biodiversity information plays a fundamental role in ... the decision making and operations of national and local government, developers and others". We're not quite at that point yet! Progress will depend on regular dialogue between recorders, data managers and data users (something that NFBR strongly supports), and we are grateful to Lisa and Nicky for taking part in this. Further development of agreed standards and take-up of the LRC accreditation systems can only help. If you'd like to contribute your own views please let us know via Facebook, Twitter, email or post.

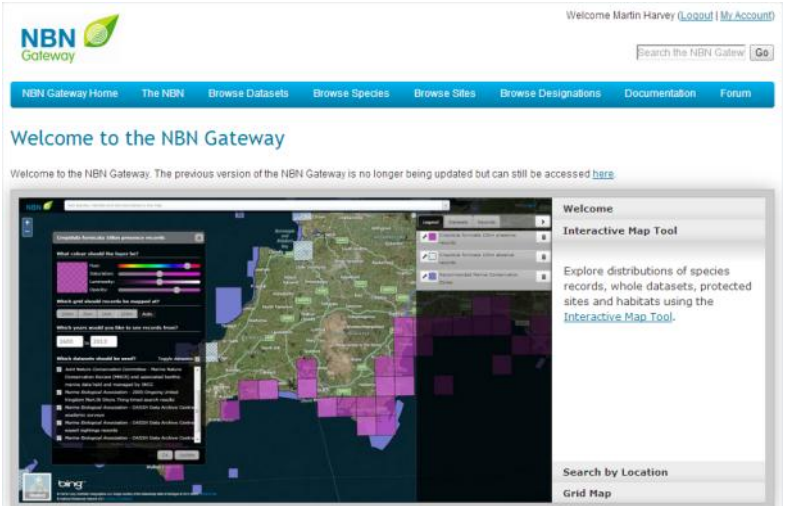
NBN Gateway version 5

Mandy Henshall, NBN Trust Information & Communications Officer

Following its recent upgrade, the new version of the NBN Gateway (version 5) gives better performance and stability due to the investment in servers that can cope with the increasing volume of data (now almost 100 million records) and increased usage of the system. NBN Gateway 5 is more flexible in terms of accessing and downloading data and the interactive map now makes it possible to select and query multiple records and create maps of two or more species in different colours.

There have also been improvements for the data providers, with data security and Data Exchange Principles remaining paramount. Data providers can now get more detailed information on who has been using their data and for what purpose, which helps them to report to their stakeholders and recorders. The new system also includes a tool for requesting access to data or downloading data within certain filters, for example a combination of spatial, taxonomic, datasets, date range and designation filters.

Some of the other major changes to the NBN Gateway are:



- All publicly available records can be downloaded and their details are available to view on screen.
- Improved download functionality – e.g. data downloads are supplied in a single table rather than a separate table per dataset. It is also possible to download whole datasets.
- You need to log in to view record details on screen or download data.
- It is easier to administer datasets and organisations, deal with access requests and proactively grant access.

As well as needing to log in before requesting access to data or downloading data, users now also have to state the reason for the access request or data download by selecting a use category from a dropdown list. The NBN Gateway Terms and Conditions remain the same as they were on the old website, which means that users need written permission from the data providers if they wish to use the data for commercial purposes.

It is also important to note that although the NBN Gateway can provide access to many million records, 80% of these records are not fully publicly accessible, meaning that the

resolution may be blurred to 10km. There remains a warning message to this effect on the website, to ensure that users contact data providers to negotiate better access to the data.

Thanks to the more detailed download logs, we know the data are being used for a wide range of useful and interesting purposes, including:

- Statutory work under the Water Framework Directive requiring records of eelgrass (*Zostera marina* and *Zostera noltei*).
- Research to inform Government policy on the impact of weed control on associated biodiversity.

- Surveys to locate potential species-rich/Annex 1 lowland grassland/wetland habitats in Scotland.
- A large number of MSc and undergraduate student projects, for example a GIS project to analyse the change in distribution of Grey and Red Squirrels in the UK and re-introduction methods.
- Studies of personal interest to expert amateur naturalists, including a study of aculeate Hymenoptera of sand dunes.
- Conservation projects, such as habitat management work in a freshwater Local Biodiversity Action Plan project.

We are monitoring use of the new Gateway, and from January we will start providing monthly summary statistics on data access requests and downloads across the whole system. In the meantime, data providers can view the summary and detailed statistics for their own datasets on their "My Account" page.

The changes to the NBN Gateway meant a major update to the system and unfortunately initial teething problems were encountered, but these are now fixed. The NBN Trust thanks all the users and data providers for their patience whilst the issues were resolved and hopes that everyone is now enjoying using an enhanced NBN Gateway. If you do have any feedback or comments we would like to hear from you via: access@nbn.org.uk

BioBlitz: the race for records

Matt Postles, Project Manager at Bristol Natural History Consortium

A BioBlitz is an event that acts as a window into the world of biological recording. A collaborative race against the clock to discover as many species of plants, animals and fungi as possible, within a set location, over a defined time period (usually 24 hours). By getting schools groups, volunteers and the general public involved, they aim to inspire a new generation of wildlife enthusiasts whilst galvanising local expertise to collect valuable biological data about an area.

We know BioBlitz events can produce a lot of data. The National BioBlitz Network recently estimated that over 113,000 biological records have been submitted to Local Environmental Records Centres and online platforms since the first British BioBlitz in Lincolnshire in 2006. What we don't know is how many of these make it past the validation and data cleaning processes to end up as useable, reliable data. How clean are your records?

This was a hot topic for the annual BioBlitz Conference where we tackled some of the challenges and idiosyncrasies of recording at BioBlitzes with the help of a panel of recording professionals. The event in Bristol on 17 November 2013 brought together over 60 "BioBlitzers" from around 40 organisations to discuss the value and challenges of running these diverse events.

Recording vs engagement

BioBlitz events superficially appear to have split personalities. Are they for recording or are they for engaging the public? The ideal of course is to achieve both, but as one of our delegates remarked: "Taking 40 or 50 people on a bat walk is no way to conduct a bat survey".

Each event tackles this in their own way but the most successful approach appears to be to provide a gradient of involvement allowing people to find their own level. Fun outdoor activities with limited recording like pond dipping, bug hunting, arts and crafts, etc. can inspire families and younger school groups to take more of an interest. Slightly more advanced activities such as wildflower walks, bird ringing or survey technique demos take participants to a new stage where the process of biological recording can be introduced to them with records being checked by more experienced naturalists. Then there are sessions of in depth surveying for the keen, experienced naturalists to do some hard core recording.

The important thing is to create opportunities around these targeted activities for the diverse participants, with different motivations and levels of interest, to mix together and share their enthusiasm and knowledge across such artificial boundaries.

What about data quality?

For most BioBlitz events, partnership with a Local Environmental Records Centre and experienced recording groups is the best way to ensure that quality data is collected and handled appropriately and the expertise is available to support recording activities.

Whilst these experienced recorders may well provide the bulk of a BioBlitz species count, either recording on their own or helping members of the public identify what they find, getting people to contribute their own records is all part of the experience. Setting challenges or tick lists using easy to identify species gets people involved in the process of identifying and recording far more effectively than simply reeling off species names to be scribbled down.

One way to clean your biological records, while getting the less experienced involved, is to have a 'triage' identification system as pioneered by the organisers of York BioBlitz. Members of the public, armed with sample pots, go in search of species under the guidance of a front line of enthusiastic volunteers with basic identification skills (themed expeditions may be led by a more experienced specialist). These front line volunteers help explain the process of identification and get things down to a certain level (beetle, spider, etc.). Those species that can be identified to species level easily are recorded in the field whilst others may be photographed or collected and returned to base camp, with their grid reference noted. Each taxonomic group can then have a 'samples in tray' where a more experienced specialist can be consulted, either in situ or via online platforms like iSpot, to identify more difficult species and ensure accurate identification.

By bringing together the enthusiasm of knowledgeable people, BioBlitz events aim to inspire a passion for the natural world and share the process of biological recording and species identification with the general public.

The National BioBlitz Network is an initiative of Bristol Natural History Consortium: a collaboration between Avon Wildlife Trust, BBC Natural History Unit, Bristol City Council, Bristol Zoo Gardens, Environment Agency, Defra, National Trust, Natural England, University of Bristol, University of the West of England, and Wildscreen.

To find out more about BioBlitz and download a guide for how to run your own event, go to www.bioblitzuk.org.uk

Getting the seaweeds online and on the map

Juliet Brodie and Jo Wilbraham, Natural History Museum

The seashores and shallow seas around Britain support an important component of UK biodiversity with over 650 species of red, green and brown seaweeds, which represents c. 7% of the world's seaweed flora and includes vital habitat-forming kelp forests and maerl beds. Yet seaweeds remain an under-recorded group and valuable information is locked away in herbaria around the UK often without the resources needed to resolve this situation. In 2013, two initiatives to address these deficits were realized: the **British Phycological Society Online Recording** website, and **Seaweed Collections Online**. Both of these projects have been driven by the urgent need for good quality, verifiable data on past and present species occurrence to provide information on, for example, environmental change, ocean acidification, potential pressures from harvesting, loss of habitats and increases in non-native species (currently c. 6% of the UK flora).

British Phycological Society Online Recording

From its inception in 1952, a key aim of the British Phycological Society (BPS) was to record and map the seaweeds of the British Isles. A seaweed recording scheme was operated from the 1960s to the 1990s which contributed substantially to a landmark atlas publication (Hardy and Guiry 2003). Both annual field meetings and the recording scheme ceased to operate, although plans were drawn up to develop an online recording scheme through the Biodiversity and Conservation Committee of the BPS in 2008. When the opportunity came to get the scheme up and running via the OPAL Grants Scheme using the Indicia online recording toolkit, the need for recording was increasingly apparent. Online recording will enable evidence to be gathered to determine change in the seaweed flora including, for example, assessment of reported losses of the habitat-forming large brown seaweeds and spread of invasive non-natives. Data from the scheme can be fed into coastal quality assessments, including the European Water Framework Directive and Marine Strategy Framework Directives.

Solieria chordalis photographed at Weymouth, 2010, by Jo Wilbraham. Herbarium specimen collected.

Traditional seaweed teaching in Universities has virtually collapsed in the UK and this initiative has the potential to raise awareness and broaden the appeal of seaweed studies. It is also anticipated that it will facilitate a wider engagement in seaweed recording and will complement existing outreach initiatives, including The Big Seaweed Search (OPAL/Natural History Museum/BPS) which has been running for several years.

In order to get the online recording off to a good start, a field meeting was proposed that would revisit the Northumberland coast where the BPS had held a meeting to study seaweeds in 1959. The 2013 field meeting, organized by Prof. Martin Wilkinson, was based at the Dove Marine Laboratory of Newcastle University – a centre of excellence for outreach activities – in June over a four day period. The meeting was extremely well attended by consultants, students, researchers and people of other professions.

The online recording portal on the BPS website is open to anyone to enter seaweed records. Data are stored at the Biological Records Centre and will be freely available through the NBN Gateway and to DASSH (Data Archive for Seabed Species and Habitats). Records will be verified by a panel of experts provided by the BPS, using the verification facilities provided by iRecord.

Seaweed Collections Online: mobilising data from national and regional museums

The Natural History Museum (NHM), a collections-based research institute, houses c. 6 million botanical specimens and a collection of c. 75,000 UK seaweed specimens. We have almost completed data capture on key parts of our UK seaweed collection, focusing on non-native and rare species in particular. These data provide crucial evidence points for mapping changing patterns in species distribution around the UK. However, other National and Regional museums often hold important collections which will help fill in current spatial and temporal data gaps. In many cases these data are unavailable electronically and resources may not available locally to deliver this. The aim of this project was the mobilisation of biological data contained within museum collections of seaweeds collected from UK shores.

Herbarium specimen of *Grateloupia subpectinata*.

The project Seaweed Collections Online initially came about because of questions we wanted to answer related to our research at the NHM. For example, time series data for specimens and locations will be valuable in adding to work we are undertaking for a UK seaweed Red Data list. To prioritise the data capture over the time period of the project a target list of c. 100 seaweed species was drawn up in order to focus efforts on species of particular interest to biodiversity and

Table 1. Participating institutions, number of records mobilized and approximate dates of the collections.

Institution	Records	Dates
Marine Biological Association	4000	1850 to 1993
Royal Botanic Garden Edinburgh	1435	1778 to 2004
National Museum of Wales	608	1865 to 2013
National Museums Liverpool	550	1821 to 2012
Manchester Museum	391	1833 to 1964
Stromness Museum	380	1839 to 1910
Norfolk Museums and Archaeology Service	280	1801 to 1973
Essex Passmore Edwards Museum	219	1839 to 1910
Oxford University Herbaria	200	18th C to 1937
Booth Museum of Natural History	69	1858 to 1964
Royal Collections Trust	66	1840 to 1857
Plymouth City Museum	54	c. 1850s
Shetland Museum and Archives	51	1949 to 1973
Somerset Heritage Service	31	1840 to 1874

Table 2. Numbers of specimens of *Padina pavonica* and *Codium bursa* in the collections.

Institution	*Padina pavonica*	*Codium bursa*
Marine Biological Association	21	0
Royal Botanic Garden Edinburgh	31	6
National Museum of Wales	17	6
National Museums Liverpool	8	0
Manchester Museum	32	10
Stromness Museum	0	0
Norfolk Museums and Archaeology Service	6	2
Essex Passmore Edwards Museum	2	1
Oxford University Herbaria	2	0
Booth Museum of Natural History	8	3
Royal Collections Trust	3	0
Plymouth City Museum	1	0
Shetland Museum and Archives	0	0
Somerset Heritage Service	1	0
TOTAL	**132**	**28**

conservation research. This included aspects of the UK seaweed flora which are recognised as important in terms of indicators of environmental change, impact on ecosystem functionality and level of conservation concern (e.g. Brodie *et al*. 2007, Brodie *et al*. 2012, The Big Seaweed Search). This includes i) the large zone-forming brown seaweed species, ii) rare species and iii) non-native species, which in total will comprise approximately c. 150 species (25%) of the total UK seaweed flora. Many of these species are data deficient for distribution data and are generally not so well represented in herbaria, so combining data in this way will significantly improve our knowledge-base for these species by enhancing the spatial and temporal data available. Details and photographs of the herbarium specimens are collated and shared via the Seaweed Collections Online website, which was built using the Natural History Museum's Scratchpads toolkit (see article on page 8 of this newsletter).

In addition to the NHM, 14 national and regional institutions participated (Table 1), 8,334 records were received of which 4,334 were newly generated. The data and the interaction with the curators at the various herbaria provided a forum for debating the value of the collections, some of which had not been studied for at least 50 years. The results are providing information on temporal and spatial change and are a record of specimens where taxonomy has been updated in recent years and are valuable for cryptic species. It is clear that there is a considerable amount of re-identification required, given the advances in our understanding of species concepts in recent years

due to the application of molecular techniques. The records confirmed our understanding that only a few of the non-native species were present in the flora prior to the second half of the 20th century.

The collections are also a rich source of social history, including collections made by Queen Victoria's children (Royal Collection Trust, Windsor Castle) and the stories of the people that made collections. Perhaps most striking is the impact that the Victorian collectors have had on some of the more charismatic seaweed species. Almost every collection from the period we have documented contains one or more specimens of *Padina pavonica* and *Codium bursa* (Table 2), and the impact appears to have been more devastating on these species than those of many environmental forces that seaweeds have been subjected to since.

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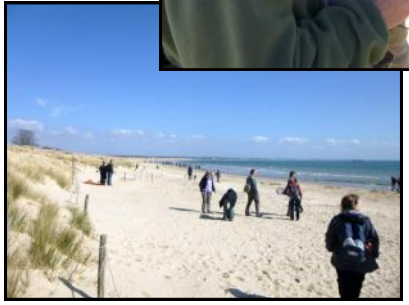
These two projects have been made possible because of grants from Opal (BPS Recording Project) and the Esmée Fairbairn Collections Fund (Seaweeds Online). We are also grateful to the generosity and enthusiasm of the curators at the different museums. In addition, the British Phycological Society and particularly the members of the Biodiversity and Conservation Committee, have provided tremendous input and support over the years.

Don't forget, if you haven't yet booked your place at the* NFBR 2014 conference*, go back to page 2 for the details!



Photos by Paula Lightfoot and Graham Walley from the 2013 NFBR conference field trip to Studland Heath, Dorset - we should be able to find some different species in the Derbyshire Peak District!