

NBN Gateway Technical and User Review

February 2015

Report prepared by
The NBN Trust



Contents

Executive summary and conclusions – Page 3

Introduction – Page 4

Purpose of the document – Page 4

1. NBN Gateway User Review Questionnaire – Page 5

2. Review of NBN Gateway website – Page 19

3. NBN Gateway needs analysis workshops – Page 30

Appendix 1: NBN Gateway User Review Questionnaire – Page 35

Appendix 2: List of respondents to the NBN Gateway User Review Questionnaire – Page 53



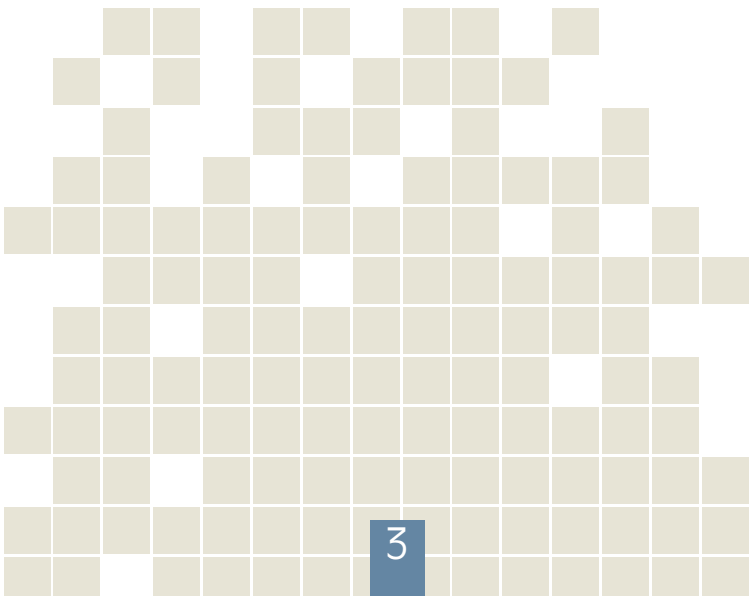
Executive Summary and conclusions

The NBN Trust undertook a technical and user review between July and December 2014 to determine if the NBN Gateway is fit for purpose. That review had three main components:

- NBN Gateway User Review Questionnaire – completed by 150 respondents in October 2014.
- Critical review of the NBN Gateway by consultants – undertaken by Cerulean Design in August – September 2014.
- NBN Gateway Needs Analysis workshops – attended by 30 people on 20th November 2014 at the Natural History Museum.

Conclusions from those three pieces of work are as follows:

- | | | |
|---|--|--|
| 1. There is a complex technical infrastructure in the UK for capturing, curating, analysing and disseminating biological data and information. | 4. The existing data infrastructure is not fit for purpose and alternative solutions or significant work is required to ensure the needs of both data providers and users are met. | o Ensuring data access request processes are simplified and streamlined. |
| 2. The creation of the NBN Gateway and the aggregation of more than 100 million biological records is an extraordinary achievement and demonstrates the value of collaboration. | 5. There is tremendous support within the National Biodiversity Network to collaborate to improve the data infrastructure, to share biological data and to help both data providers and users. | o Greater promotion of data providers. |
| 3. There is a diverse array of users of NBN systems and meeting all their needs will be a challenge and will undoubtedly require compromise. It is unlikely that all needs of all users can be met by one system. There are many potential audiences that are not being reached at present. | 6. The UK Species Inventory is an important system that needs investment and promotion. | o Support for storage of diverse data types (images and habitat, environmental layers etc.) |
| | 7. Supporting data providers will require: | 8. Supporting data users will require: |
| | o Ensuring data flow processes are simple and efficient. | o Improved user interface. |
| | | o Improved security and stability of the infrastructure. |
| | | o Improved tools and systems for viewing, accessing, analysing and downloading data. |
| | | 9. Most data are not shared and more work is needed by all biological data custodians to provide a collective view of UK biodiversity. |



Introduction

The NBN Gateway (<https://data.nbn.org.uk>) has become a vitally important tool for biological data collation, curation, visualisation and dissemination in the UK. Continuous improvement of this system is of importance to the future of the NBN. It provides the technical infrastructure used to achieve the National Biodiversity Network (NBN) vision which is:

“Wildlife data collected and shared openly by the Network are central to the UK’s learning and understanding of its biodiversity and are critical to all decision-making about nature and the environment”.

Purpose of the document

This document summarises all aspects of a technical and user review that has been undertaken by the NBN Trust to determine if the NBN Gateway is fit for purpose. That review was carried out between July and December 2014 and had three main components:

1. NBN Gateway User Review Questionnaire

This questionnaire provided an opportunity for any NBN member or NBN Gateway user to give feedback. That feedback included why people access the NBN Gateway, what people find most useful and what could be done to improve the system. The full questionnaire is provided in Appendix 1.

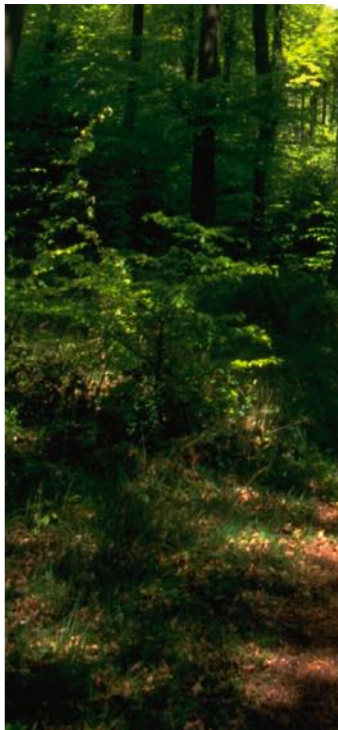
2. Critical review of the NBN Gateway by consultants

The NBN Trust employed website and technical design consultants to review the user experience of the NBN Gateway user interface to determine whether it is fit for purpose. That included a review of the NBN Gateway, the Interactive Mapping Tool and the NBN Website.

3. NBN Gateway Needs Analysis workshops

The NBN Trust ran two NBN Gateway needs analysis workshops at the Natural History Museum on Thursday 20 November 2014. The aim of these was to determine the objectives for the NBN Gateway, to identify issues, to assess alternative options for a user interface and to evaluate the needs of different user types.

The NBN Gateway is managed by the Joint Nature Conservation Committee, in conjunction with the NBN Trust and Centre for Ecology and Hydrology. Governance of the NBN Gateway is achieved through a Gateway Project Group made up of representatives from the main government agencies that use biological data in their work. They meet annually to review progress and set the development programme for the coming year. The NBN Trust also administers a NBN Gateway User Group made up of 12 representatives of the NBN membership. This group meets annually but is also involved throughout the year in reviewing technical developments, providing input to improve the systems and providing beta testing of new developments.



1. NBN Gateway User Review Questionnaire

Main findings

The NBN Gateway User Review Questionnaire received 150 responses from England, Northern Ireland, Scotland, Wales, Isle of Man, Republic of Ireland and Brussels. Responses reflected the views of 83 organisations and 55 individuals.

The majority of users would recommend the NBN Gateway to others and it is seen as a ‘great achievement’ and a ‘brilliant place to get an overview on species distributions and taxonomic information’. However, there are limitations mainly as a result of the deficits in data holdings and stability and functionality of the system.

There is a faithful network of NBN Gateway users and use is increasing as more people discover it. The NBN Gateway is used primarily to look at species distribution maps, using distribution maps to aid with verification, to upload, manage and disseminate data and to evaluate the likelihood of a species being at a particular site. Data are submitted mainly for the common good of sharing and to advance the collective understanding of biodiversity, to make data available for scientific research and to make data available for education.

Current issues

Speed and stability of the NBN are affecting system use. Incomplete data holdings, limited access to habitat data and restrictions on data also hamper use. There are problems with the flow of data with the majority of records taking more than six months to arrive on the NBN Gateway, and many providers not knowing when their data arrives at all. Verification of records is heavily under resourced, and primarily carried out by volunteers, therefore while people would like data flows to be faster in theory, this may not be possible in practice.

Users are often concerned with the quality of the information, they are unsure about whether they can use the information and often they cannot gain enhanced access to the restricted information that they require. The access controls

are underutilised with users either not having needed to use them, not knowing how to use them and not knowing that they exist.

Future

There is considerable room for improvement across many aspects of the NBN Gateway as it does not currently meet all user needs.

Despite most users being able to search the NBN Gateway they want to see the design and user experience for searching made simpler and more intuitive, with increased functionality. Users want easier interrogation, navigation and searching of the Interactive Mapping Tool with additional features. Users would like more tutorials and guidance on how to use the NBN Gateway. Improving the stability of the system is a priority and there is a demand for more data and information about species, habitat

and ecosystems. Photos of species to aid verification, education and understanding would add value to the data holdings. Users would like improved visualisation systems for mapping data, innovative tools to explore the data holdings and summary data about what is available.

The Natural History Museum maintains the taxonomy that underpins the NBN Gateway, Recorder6 and iRecord and it is also used by many organisations in the UK. Users find it easy to submit changes and suggestions for new names/taxa and amendments can be sent via email to Chris Raper (c.raper@nhm.ac.uk) and via the NBN Forum. Awareness should be raised of the work of the NHM in managing the UK Species Inventory to increase use and improve efficiencies.

Respondents would prefer to use a single portal than have to visit

several sites to find the required information and at present there are too many incompatible data collection systems in use (and still growing). There are over 40 additional sources of UK biodiversity data that are used including Statutory Agency data access tools, National Scheme and Society portals, Local Record Centres, NBN systems and global data portals such as GBIF. One commentator suggested “we are still a long way from an effective single or distributed data source, from which data of known quality is freely accessible – and from a funding model to support it effectively.”

The results of this survey will be used to guide changes to the NBN data systems to improve the user experience for updating, make the systems more efficient and user focused and ensure quality data is quickly and efficiently collected, curated and disseminated.



Introduction

As part the NBN Strategy Refresh (in 2014), the NBN Trust conducted a survey of user experiences to the NBN Gateway. The purpose of this survey was to help the NBN Trust to understand the current user experiences of the NBN Gateway and to identify where improvements can be made. The results of this survey informed discussions at two NBN Gateway User Needs Analysis workshops held on the 20th November 2014 and will be used to inform future changes to the NBN Gateway.

The survey had nine sections:

- Who are you?
- Providing your data to the NBN Gateway
- Your user experience
- Accessing Data
- NBN Gateway Functionalities
- Other sources of biodiversity data
- Future development of the NBN Gateway
- UK Species Inventory
- Final Questions

The questionnaire (which can be read in full in Appendix 1) received 150 responses from England, Northern Ireland, Scotland, Wales, Isle of Man, Republic of Ireland and Brussels. The NBN Trust is grateful to the all organisations and individuals that completed the questionnaire and for a full list of organisational respondents see Appendix 2.

It was noted that 26% (n=38) of respondents were not sure if they were a member of the NBN. This is a common theme, raised in the other strategy review work streams. The NBN Trust will seek to improve the membership scheme including promoting benefits of membership.

When asked how long users have been using the NBN Gateway, we heard that, of those who responded (n=147) the majority have been using the NBN Gateway for at least five years (49%, n=72), with 24% (n=36) using it since the start of the NBN. 23% n=34) respondents have been using it for over a year, and only 3% (n=4) have used it for less than a year. The views expressed via the questionnaire provide a good overall picture of the NBN Gateway's regular users, though the views of many new users may not have been heard in this exercise.

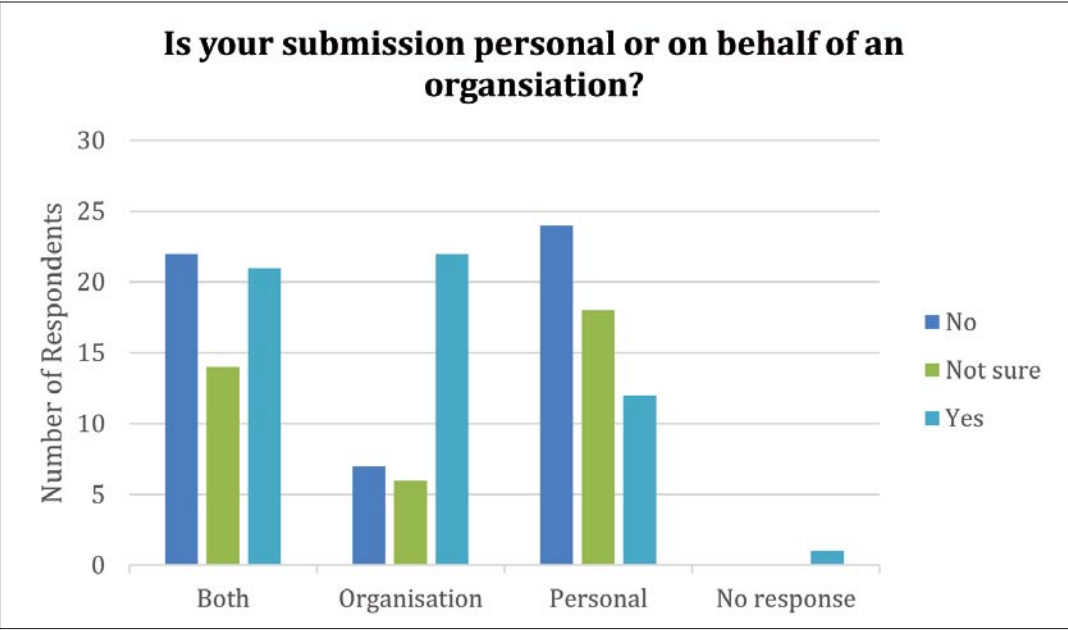


Figure 1: Is your submission personal or on behalf of an organisation? Responses split depending on whether the respondent is a member of the NBN.

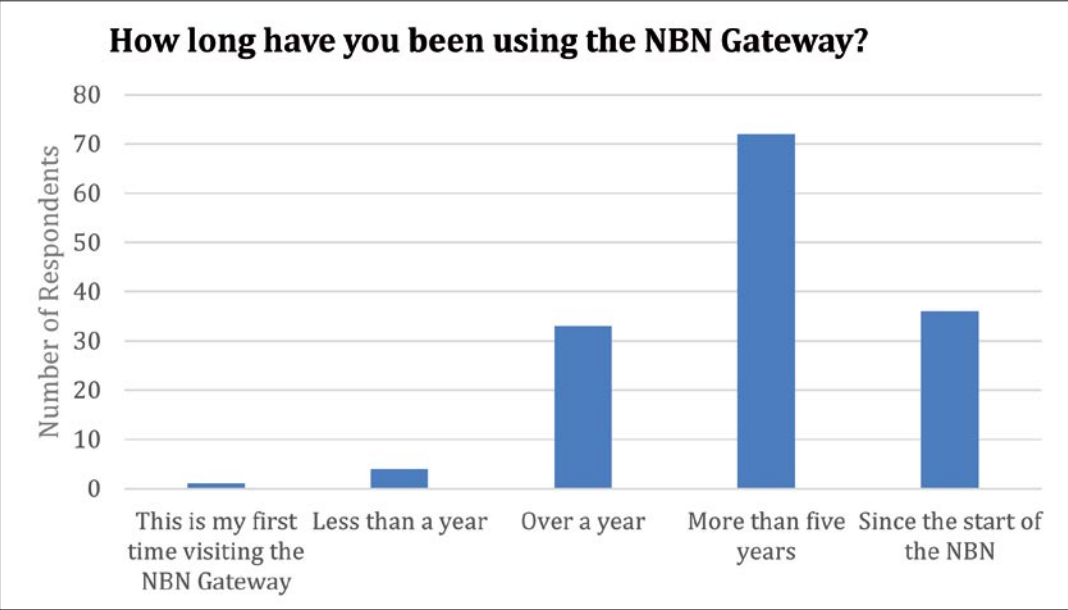


Figure 2: How long have you been using the NBN Gateway? 49% of respondents have been using the NBN Gateway for at least five years, with 24% using it since the start of the NBN. 23% respondents have been using it for over a year, and only 3% have used it for less than a year.

Providing your data to the NBN Gateway

Not all respondents to the questionnaire provide data to the NBN Gateway. 100 respondents completed this section, representing 67% of the total responses.

We asked respondents why they provide data to the NBN Gateway. The results of this question can be found in Table 1. The top three reasons for submitting data to the NBN Gateway were:

- To provide data for the common good and to advance our understanding of biodiversity
- We want our data to be available for scientific research
- We want our data to be available for education

People were asked what the most important reason for submitting data to the NBN Gateway was. Of the 99 responses to this question, 62% (n=61) of people submit data primarily to “provide data for the common good and to advance our understanding of biodiversity”. Figure 3 summarises the most important reasons for submitting data to the NBN Gateway, broken down by whether the data provider is answering as an organisation or individually, or representing both.

Reasons for submitting data to the NBN Gateway	n	%
To provide data for the common good and to advance our understanding of biodiversity	82	16.0
We want our data to be available for scientific research	78	15.2
We want our data to be available for education	67	13.1
We want to inspire people to care about the environment around them	53	10.4
To enable more efficient data sharing between our partner organisations	52	10.2
We want to be able to see our data in the context of everyone else's	43	8.4
To signpost our organisation and show people what data we hold	41	8.0
To enable our data to be made available globally through GBIF	41	8.0
We are required to do it by the people that fund us	36	7.0
It is what we have always done	8	1.6
I use it for information rather than providing data	2	0.4
To provide feedback and encouragement to recorders	2	0.4
Efficiency savings from data requests	1	0.2
Promote the principle of data sharing	1	0.2
Because I cannot send data to the NBN – it has to go via a NSS	1	0.2
It allows staff members to easily access data they need	1	0.2
I appreciate having access to other's records so I feel that sharing mine is the right thing to do	1	0.2
It's our entire raison d'etre!	1	0.2
It is corporate policy for our species records to go to the NBN Gateway	1	0.2

Table 1: Reasons for submitting data to the NBN Gateway. This question allowed for multiple answers, and therefore the % do not necessarily add up to 100%.



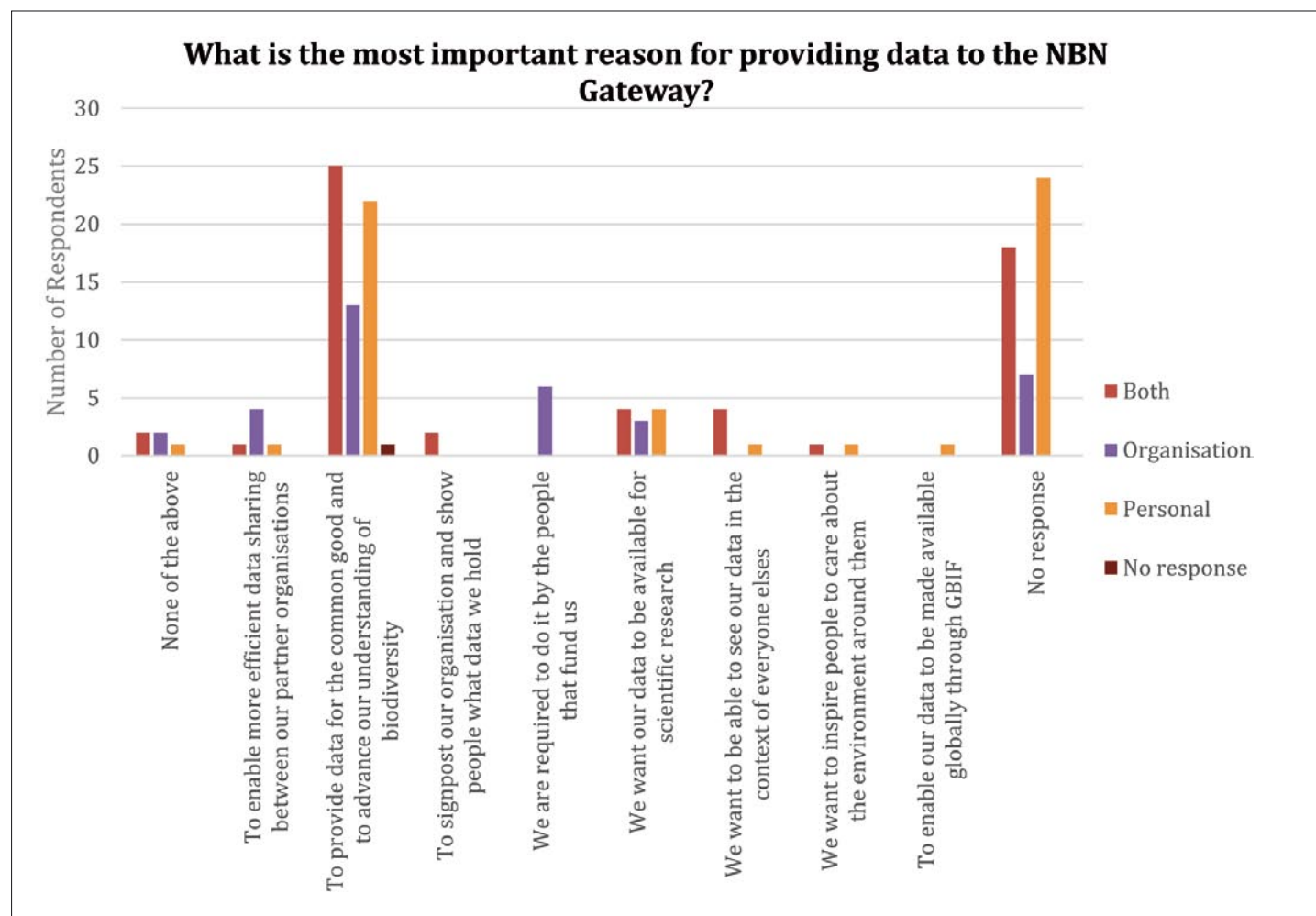


Figure 3: What is the most important reason for providing data to the NBN Gateway? Responses split depending on whether submission is from the perspective of an organisation, personal or both.



People were asked, as a general rule, how often they submit updates to the NBN Gateway? We heard from 99 responses that most respondents submit data on an annual basis (34%, n=34) or 'as and when' (32%, n=32) (see Figure 4).

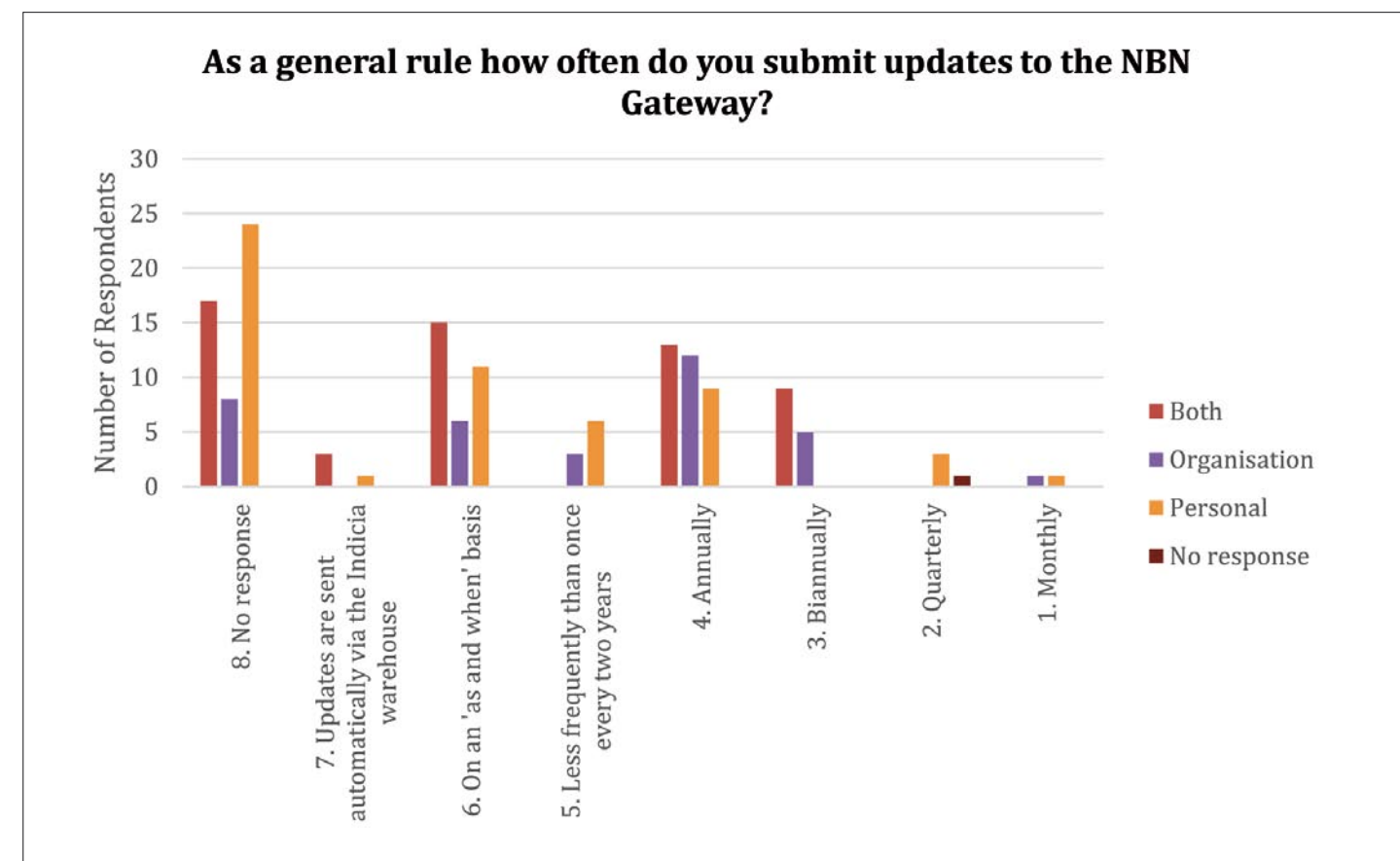


Figure 4: How often do respondents submit updates to the NBN Gateway? Responses split depending on whether submission is from the perspective of an organisation, personal or both.

People were asked "how long does it take for a record captured by you, your staff or volunteers in your organisation to arrive on the NBN Gateway?" We heard from 102 people, and 36% (n=37) of these do not know when their data arrives on the NBN Gateway and the majority of records 35% (n=36) take more than six months to arrive on the NBN Gateway. 42% (n=36) of data providers who responded (n=86) did not think this time to market is acceptable (see Figure 5 for full breakdown of these results).

While many data providers feel the current time to market is unacceptable, many respondents said that record verification is heavily under resourced, and primarily carried out by volunteers. Therefore, while people would like data flow to be faster in theory, this may not be possible in practice. Other reasons included:

Acceptable time (58%, n=50)

- Verification is carried out by volunteers
- It is more important that data are high quality rather than available immediately
- Verification process and speed depends on the type of data
- Data providers need time to publish records before sharing
- If up-to-date data is required, this can be accessed directly from the data provider
- Allows time for validation and verification
- Data are provided to National Schemes and Societies who provide these data to NBN Gateway, the speed is outside our direct control

- Data provided to the NBN Gateway are a summary of the dataset, and not raw records
- It takes time to convert data into NBN Data Exchange Format
- Once data are submitted to the NBN it is promptly on the NBN Gateway, the delays are before submission which is outside the control of the NBN
- Submission is reliant on the speed of data input and processing at BRC
- NBN is not our primary means of information provision – it is not a central part of what we do

Unacceptable time (42%, n=36).

- Volunteer data collectors want to see their data on the NBN Gateway quickly

- For incidental records there is no reason why the data shouldn't be transferred immediately
- We would like it to be faster but we are heavily under resourced
- Current time to market is too long to spot recent changes or chart spread of invasive species etc.
- Data are usually out of date by the time they arrive on the NBN Gateway
- Some data never make it to the NBN Gateway
- A bulk upload process for commercial datasets is required
- People needing data still come to us for an extract from our own database to ensure that the information is up to date – this takes up a lot of time

- Ideally iSpot users would like to see their data on the NBN Gateway instantaneously
- It is frustrating for data suppliers to have to wait so long and it creates extra work for data managers
- The communication with the NBN Gateway upload team is poor
- The data I want to submit are not yet accepted by the NBN Gateway
- All my records are now captured online using iRecord (previously MarLIN, then MBA). I cannot input my data directly to NBN Gateway and so far not a single record has appeared on NBN Gateway.
- It is very demoralising for recorders not to see their records available for use.
- Should be seeing a move towards a linked database and instant transfer between Warehouses

Your user experience

Respondents were asked to describe why they use the NBN Gateway and what type of device they use to access the NBN Gateway. 20% (n=30) use the NBN Gateway for personal interest, 27% (n= 39) use the NBN Gateway for work and 51% (n=75) use the NBN Gateway for both personal interest and work (see Figure 6). No one uses a tablet to regularly access the NBN Gateway and only 1% (n=1) use a phone to access the NBN Gateway.

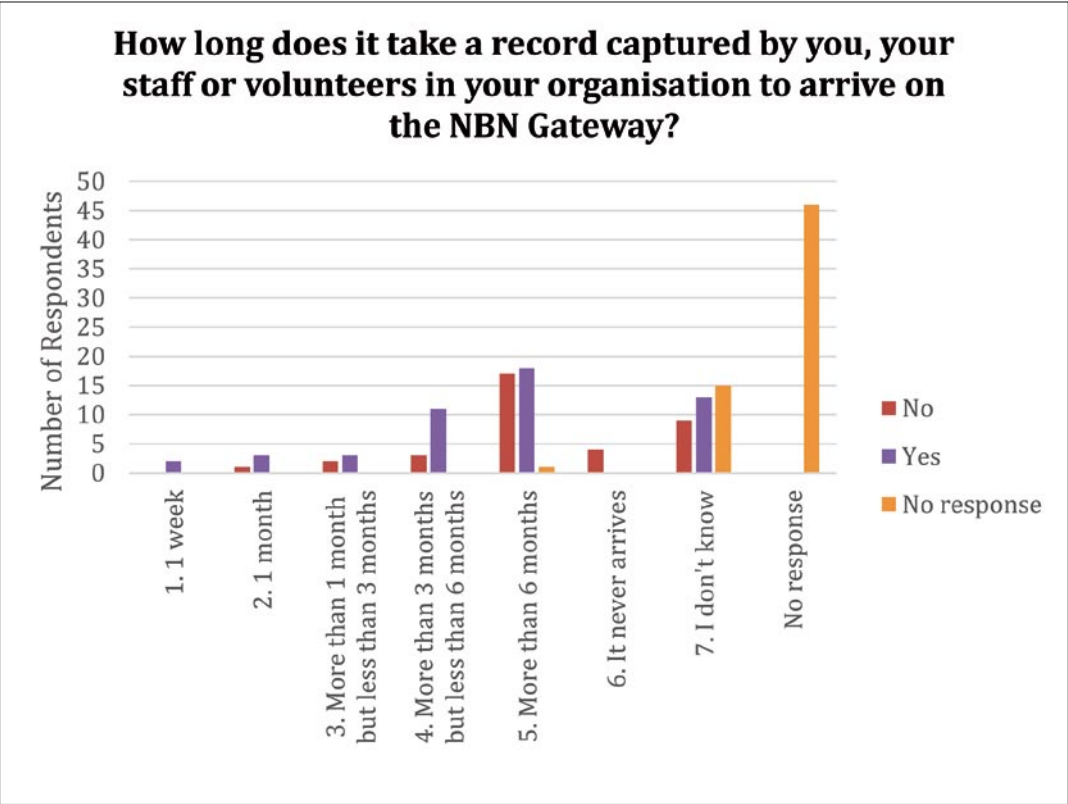


Figure 5: Average time for a record to arrive on the NBN Gateway, split by ‘do you think this time to market is acceptable’

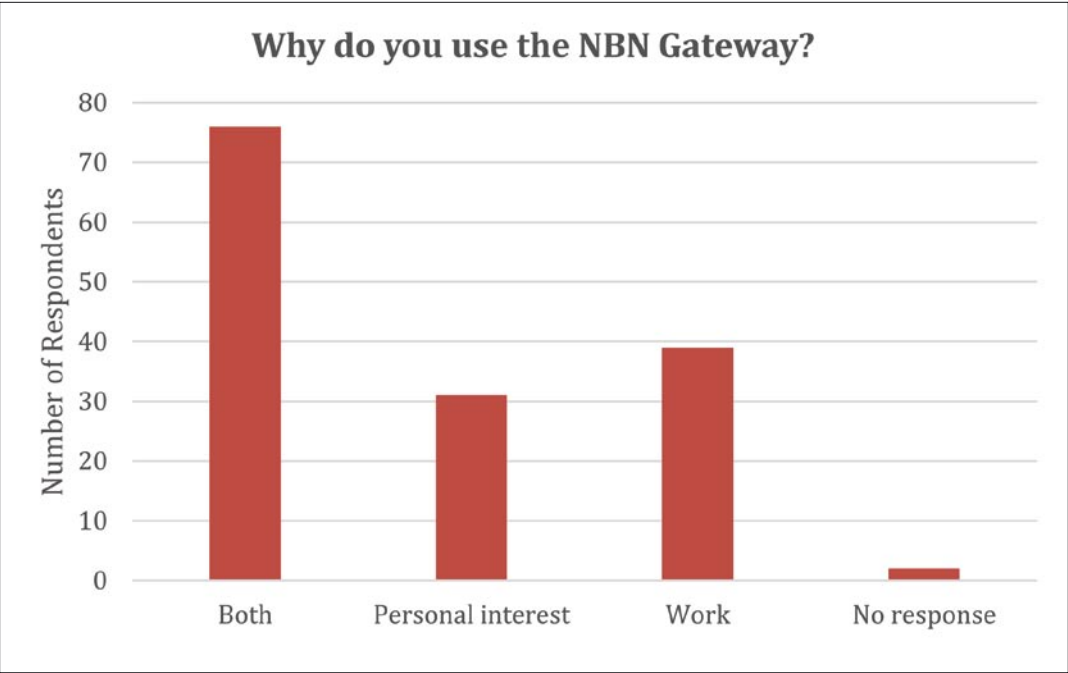


Figure 6: Why do you use the NBN Gateway?

Table 2 summarises the reasons why people use the NBN Gateway. The main reasons for using the NBN Gateway include looking at species distribution maps, using distribution maps to aid with verification, to upload manage and disseminate data and to see the likelihood of a species being on a site.

Reason	n	%
Looking at and assessing species distribution maps	70	33.0
Using distribution maps to aid verification	16	7.5
Uploading, managing and disseminating data	14	6.6
Seeing species in an area or on a site, planning holiday destinations	14	6.6
Finding species details, taxonomic information and designation information	10	4.7
Showing the public species distributions, encourage others with wildlife interests, teaching others	7	3.3
Assessing the likelihood of protected species on a site	6	2.8
Web service mapping to display NBN Gateway data in house	6	2.8
Finding sources of data and an initial point of reference for datasets which may be available for a project	6	2.8
Checking species names in Species Inventory and using the Taxon Version Key	5	2.4
Determining and filling gaps in NBN data holdings, looking for old records to update	5	2.4
Determining and filling gaps in organisation/personal data holdings and accessing additional records to enhance data holdings	5	2.4
Responding to access requests	5	2.4
Downloading datasets	5	2.4
Viewing and comparing personal records	4	1.9
Answering queries about species distribution	3	1.4
Comparative studies of local datasets in national context	3	1.4
Putting personal records into perspective and further my knowledge of species range	3	1.4
Looking at habitat associations via the Interactive Mapping Tool	2	0.9
Looking at species change	2	0.9
Monitoring and reporting on the use of our datasets	2	0.9
Work involving designated sites	2	0.9
Generating species lists for areas of interest	2	0.9
Adding information to our website	1	0.5
Data mining for research	1	0.5
It is the only central repository of data	1	0.5
Requesting access to other data	1	0.5
Rinse app data survey	1	0.5
To find difficult but associated species	1	0.5
Use Forum	1	0.5
Use in teaching and research	1	0.5
Viewing data sets from organisations who won't share data with us	1	0.5
Viewing invasive species distribution	1	0.5
Want to contribute to citizen science	1	0.5
Work on biodiversity audit projects	1	0.5
Showing volunteers what their data working is contributing to	1	0.5
Producing distribution maps	1	0.5
Using information to advise on planning work, provide SRDP, for reporting to Europe for Article 17 and to develop policy in all areas.	1	0.5

Table 2: Reasons why people use the NBN Gateway.

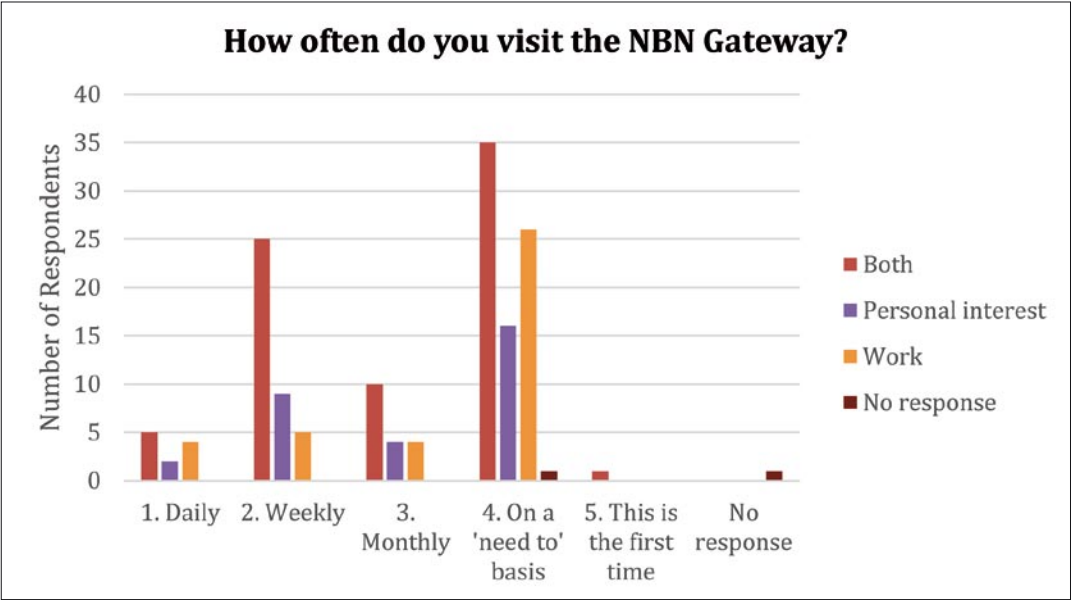


Figure 7: How regularly do you access the NBN Gateway by reason for access.

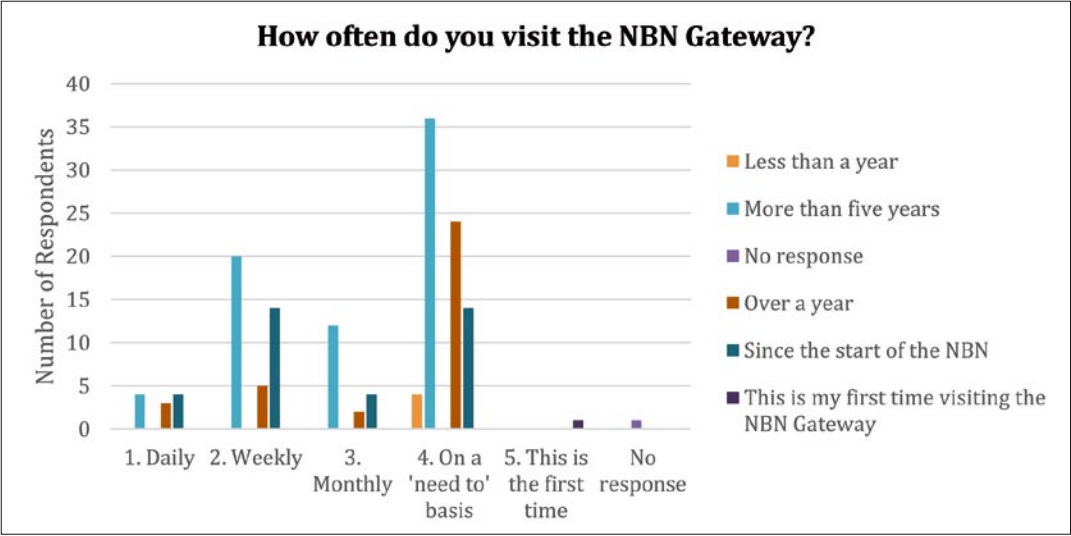


Figure 8: How often do you use the NBN Gateway by how long you have been accessing the NBN Gateway

The majority (53%, n=78) of respondents of this question use the NBN Gateway on a ‘need to’ basis (see Figure 7). Those using the NBN Gateway for work are more likely to visit the Gateway on a ‘need to basis’ (84%, n=26) than those using it for personal interest (52%, n=16). That said, it is not possible to distinguish those users who use the NBN Gateway for both work and personal interest to identify if there is a significant difference between these categories. Long time users of the NBN Gateway are more likely to visit the NBN daily (Figure 8).

Accessing Data

Respondents were asked if they knew how to search the NBN Gateway and, of the 147 respondents, only seven respondents did not know. Despite most users being able to search the NBN Gateway, there is considerable room for improvement with 70% (n=94) of 134 respondents saying that the NBN Gateway search functionality could be improved.

NBN Gateway users want to see the design and user experience for searching made simpler and more intuitive with the search box being much clearer on the home page. Many respondents would like to be able to save a search and recall it (i.e., have a customised personal profile saved on the NBN Gateway), and to have a default dataset saved. The lack of flexibility in name spellings is frustrating for many.

NBN Gateway users want filters to give more powerful and flexible searching which could also be extended to the data request wizard. Suggestions for filters include searching by:

- Verified records only
- Downloadable and non-downloadable data
- Taxon Version Keys
- ObservationID
- Latitude/Longitude
- Taxon Groups
- Synonyms
- Recorder Name
- Area (County, Region, Country etc.)
- Notable species (the more scarce or threatened for a given site)
- Data provider

Users would also like the ability to undertake radius searches, searches within a user defined polygon and some users would like to be able to query by writing real SQL similar to <https://modeanalytics.com/>. Many users have requested to be able to search for more than one species at a time, or multiple designations to enable comparative searches. Once the search results are returned, users would like to be able to sort these results on a range of user defined variables.

Many responses were specifically focused on searching the Interactive Map Tool (IMT). Users want easier interrogation and navigation and searching of the IMT, to be able to maintain key search parameters when searching between species and for there to be a better link between the site boundary and subsequent data. Users also want to have an information tool to give detailed information behind a record or site. There are frustrations that the back button clears the loaded data layers and users want to be able to navigate between layers and maps without the data being lost from the map when they return.

Users would like more tutorials and guidance on searching, which extends across use of the entire NBN Gateway.

Use of Access Controls for Accessing Data

The NBN Gateway access controls were originally developed between 2001-2008, and later updated between 2011-2013. They enable users to request enhanced access to datasets beyond the resolution that the data provider has allowed the public to see. People were asked ‘have you used the access controls to access restricted data?’ and, of the 72 that responded, 44% (n=32) had used them and 56% (n=40) had not used them before (see Figure 10).

Reasons for not using the access controls are summarised in Table 3. The top three reasons for not using the access controls are people not having needed to use them, people not knowing how to use them and people not knowing that they exist.

Reason for not using the access controls	n	%
I haven’t needed to	24	30
I don’t know how to use them	20	25
I didn’t know they exist	20	25
The time taken for data provider to response is often too long	6	8
I have not been granted access before	6	8
Do not have time to work out what data we should apply for	3	4
I don’t have data on the Gateway	1	1
I think that if it is not available, it shouldn’t be used	1	1
No category to cover usage as a Local Recording Group	1	1
Don’t have data	1	1
I would approach the data provider directly	1	1
I don’t really want to have to explain why I want more detailed access	1	1
I am not allowed to access as I use the information for commercial purposes	1	1

Table 3: Reasons for not using the NBN Gateway access controls



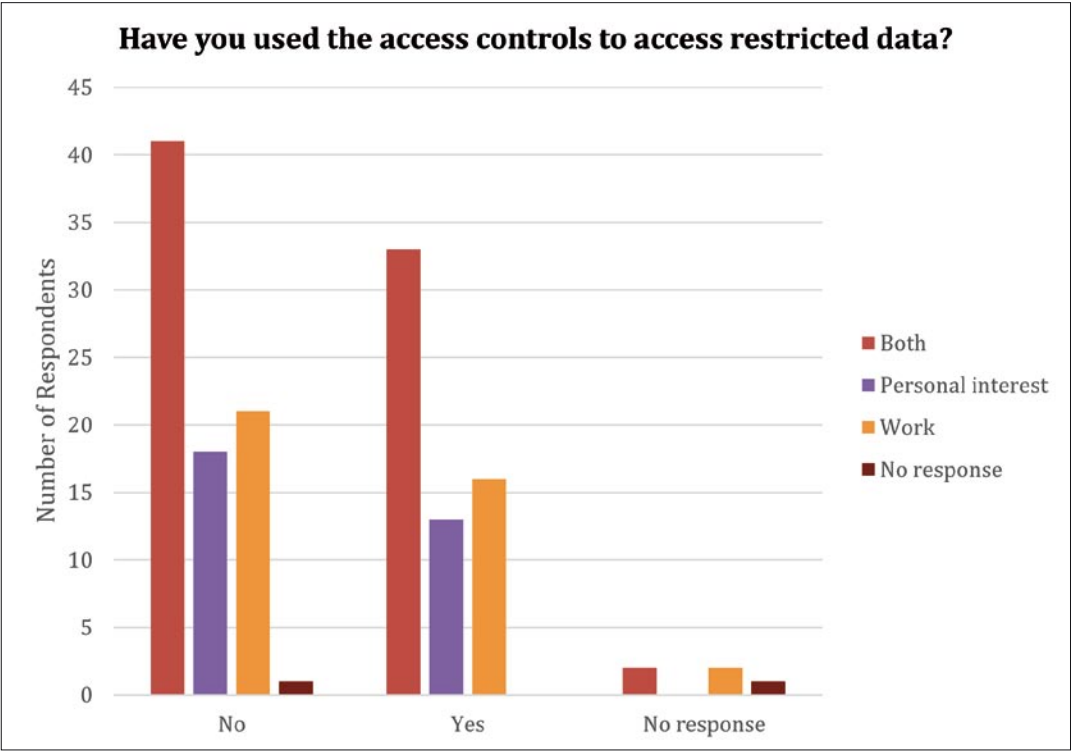


Figure 10: Have you used the access controls to access restricted data, split by reason for using the NBN Gateway.

Suggestions to improve the access controls can be broken into three areas: technical improvements, improved guidance and changes in data access.

Technical improvements

People want the access controls to be much quicker and easier to use. For those with limited internet speed, a simpler interface is requested, as it is currently extremely slow. Contact details for many data providers are out of date which makes contacting the data provider for written permission to use the data very difficult.

Data providers want to be able to batch approve, reject and close requests and they would like the email address of the requestor to be provided in the access request.

A ‘use of data for Local Record Centre or National Scheme and Society purposes’ category to simplify requests for enhanced access was also requested. Another suggestion was to have priority data passport agreements with online billing and channeling of funds as appropriate for commercial use of data.

Guidance

There is not enough clear guidance provided around the access controls. Users are unclear on what the access controls are, why you might use them and how to use them. Users want more online tutorials and a simple user guide/handbook. This handbook should cover the characters that currently make the data request tool crash. There is also a requirement to make it clearer how much public data is available and how much data is available by applying to other organisations.

Data providers currently find that they are receiving multiple access requests that are not relevant to their data holdings. It needs to be made clearer when an organisation is happy for information to be used without enhanced access to prevent unnecessary requests being sent. Data providers would like it to be made clearer that users should filter for the relevant geographic area to prevent bogus data requests being sent. As a result data users say that

data providers are not responding to access requests, or being very slow in their response.

Data users would like to see fewer blockages and restrictions in accessing and using the data, and one suggestion was that the request should be granted by default if there is no response after 30 days. For recognised institutions there should be automatic access to key datasets. Data users would like clarification on the time it will take for an organisation to grant a request.

With regards to accessing data for commercial purposes, people would like to see more emphasis on the requirements to contact the data provider if the request is for commercial purposes, and there should perhaps be a mechanism to differentiate those wanting access for commercial purposes from non-commercial purposes.

Data access

Users currently feel that the access controls have been designed to protect the data providers and not

assist users and this makes accessing data difficult. Some respondents would like data to be allowed for commercial interests as currently a large sector is not able to use the NBN Gateway. Local Record Centres would like full access to datasets, and some think that all data (unless there is a conservation reason) should be freely available to all. Data providers would like to restrict access to individual species, rather than a whole dataset or tag particular classes of record as sensitive (e.g., breeding records for rare species are sensitive, while non-breeding records of rare species could not be sensitive). The sensitivity tags add confusion at times.

NBN Gateway Functionalities

Respondents were asked to rank the following functionalities of the NBN Gateway on a scale of 1 to 10 (where 1 is useless, and 10 is extremely useful)

- Download data about a species distribution
- Download a specific dataset
- Download data for a given area
- Download data for a designation
- Learn about a local area
- Contact an organisation
- Learn about a species
- Documentation from the NBN Trust
- Forum

Downloading data about a species distribution was the most useful feature of the NBN Gateway. Downloading data for a given area is the feature that users would most like to see developed. More results are highlighted in Figure 11.

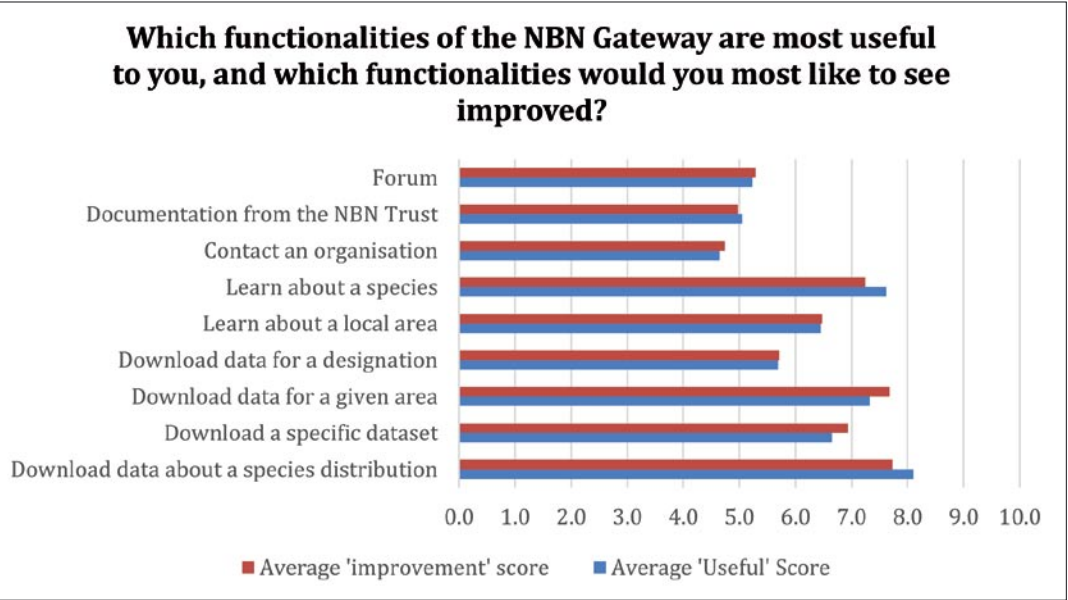


Figure 11: Which functionalities of the NBN Gateway are most useful to you (where 1 is ‘Useless’, and 10 is ‘Extremely useful’) and which functionalities would you most like to see improved (Where 1 is ‘Does not matter’ and 10 is ‘Very valuable’).

People were asked if there were additional reasons preventing them using the NBN Gateway information. Respondents were concerned about the quality of the information, they were unsure about whether they could use the information and they could not gain enhanced access to the restricted information that they required. Addition reasons preventing people using the NBN Gateway information is highlighted in Table 4.

Respondents were asked if they were able to complete their task the last time they visited the NBN Gateway. Of those who answered (n=142), 75% (n=107) were able to complete their task, however 25% (n=35) of respondents were unable. The main reasons for being unable to complete the desired task was due to the speed and stability of the NBN Gateway. Many people experienced problems with the distribution and base maps

not loading, the search being extremely slow and the system being unresponsive and crashing regularly. Often the login was not working or the NBN Gateway was unavailable when respondents needed to use the system. Other problems with the stability included a server error when trying to view metadata, the functionality to respond to access requests being down and the records analysis feature with Interactive Mapping Tool not working.

Are there reasons preventing you using the NBN Gateway information?	n	%
I am uncertain of the quality of the information	45	29
Uncertainty about whether I am allowed to use it	26	17
Information is restricted on the NBN Gateway and I cannot gain enhanced access	26	17
The information I need is unavailable	24	15
I cannot find the information because I don't know how to navigate around the NBN Gateway	18	11
Instability	8	5
It can be difficult and time-consuming using the NBN Gateway and integrating the data	4	3
The type of device or operating system I use is not supported	4	3
Data sometimes varies from GBIF	1	1
We hold the key datasets already	1	1

Table 4: Reasons preventing people using the NBN Gateway information.

Further problems are either functionality problems or concerns about the data holdings:

Functionality:

- Unintuitive to use
- Issues with Interactive Mapping Tool including poor functionality of the sidebar features
- Repeatedly failed to download some datasets
- Trying to use WMS within ArcView but it did not allow me to use the NBN data as a selectable layer

Data holdings:

- Uncertainty if user was going to get the information needed
- Significant gaps in data holdings
- Concerns about data quality
- Data disappeared when zoomed in on Interactive Map
- Wasn’t sure what granting access would mean since I wasn’t aware that I had placed any controls on the data
- Species names in Latin

Conclusions about the NBN Gateway

89% (n=125) of people would recommend the NBN Gateway to others following their last experience. The NBN Gateway is seen as a ‘great achievement’ and a ‘brilliant place to get an overview on species distributions and taxonomic information’. However, of those who would recommend the NBN Gateway, many clarified that they would recommend ‘with heavy caveats’ around the limitations of the data holdings. Despite the gaps in the data holdings, it is recognised that the current NBN Gateway is ‘better than nothing’ and the only portal that provides comprehensive access to all taxa for the whole of the UK. Many respondents described the NBN Gateway as an excellent service, with great potential, which should continue to be supported and developed. Others commented that ‘it’s good to be able to start inspiring people to care more about our environment and how it’s changing’ and ‘the Interactive Mapping Tool is great’.

The instability of the NBN Gateway is damaging the reputation of the system as it is down too often. There was also a request for a more user friendly, intuitive interface, with easier searching options, and more helpful presentation of result. Users would like to see the ability to save favourite species, and search criteria. The Interactive Mapping Tool has room for improvement and it is clear that the NBN Gateway does not sufficiently cater for marine users. Marine users would like to be able to enter data via degree, minutes and decimal minutes and have a chart backdrop (i.e., analogue of UKHO charts).

Other sources of biodiversity data

People were asked what additional data portals they use. 138 people responded and 71% (n=98) use other information data portals to access UK biodiversity data and over 40 portals were referenced, including Statutory Agency data access tools, National Scheme and Society portals, Local Record Centres, NBN systems and global data portals such as GBIF.

People were asked why they used additional routes to access UK biodiversity data. It was recognised that not one source holds all data, and it is therefore necessary in many cases to use multiple sources. Respondents stated that the NBN Gateway does not hold good quality habitat data, and there are gaps in the species data holdings. As a result respondents often go straight to Local Record Centres, National Schemes and Societies and County Recorders to gain high resolution data with full access to all additional attributes. These routes provide a more personable service, often offer analysis of records as well as the raw data, provide opportunity to question the data, and allow local nuances to be interpreted more easily. Respondents felt that the information was easier to understand from local sources, the quality of the data is apparent, the verification is more consistent and documented and the data are most likely to be up to date, comprehensive and more reliable. Local sources are also in a position

to let their clients know what data they do not have access to, which is not clear on the NBN Gateway. When working on a specific taxon respondents felt that it is quicker and easier to go straight to the relevant recording scheme than via the NBN Gateway.

For those who require access to data for commercial purposes and publications, it is often quicker to

agree permissions directly with the data provider as using the NBN Gateway can be time consuming and complicated. This also applies to sensitive data which can be hard to access through the NBN Gateway

People were asked how frequently people use Local Record Centres, MapMap, Recording Schemes, County Recorders and Conservation NGOs. The results are summarised

in Table 5. One respondent stated: “we are still a long way from an effective single or distributed data source, from which data of known quality is freely accessible – and from a funding model to support it effectively.” Respondents would prefer to use a single portal than have to visit several sites to find the required information and at present there are too many incompatible

	Local Record Centres	MapMap	Recording Schemes	County Recorders	Conservation NGOs
For most datasets	30% (n=44)	7% (n=10)	14% (n=21)	18% (n=27)	9% (n=13)
Occasionally	25% (n=37)	11% (n=16)	41% (n=61)	37% (n=55)	40% (n=60)
Rarely	17% (n=25)	11% (n=17)	11% (n=17)	13% (n=20)	18% (n=27)
Never	16% (n=24)	48% (n=71)	15% (n=23)	17% (n=25)	15% (n=23)

Table 5: Additional routes and frequency of uses to access biodiversity data.

Reason	n	%
Gaps in data holdings and incomplete datasets	33	27
Very limited access to habitat data	17	14
Cannot use the system due to restrictions on data access	13	11
Data out of date	8	7
Difficult getting to the detail of the records, lack of associated data	7	6
Issues with data quality	6	5
Designation data not widely available	6	5
Resolution too vague to be useful	6	5
Not all data verified to an acceptable standard	5	4
Difficult to search and filter appropriately	4	3
Not combined enough with other data layers	3	2
Access requests often not responded to/refused	2	2
Limited marine data	2	2
Cannot download data in different spatial formats	2	2
Unreliable platform	2	2
Unable to record into NBN Gateway	1	1
Species Inventory is out of date	1	1
Cannot draw own site boundaries for dataset integration	1	1
Lack of photos to aid with identification	1	1
Invasive species out of date	1	1
Don't know when new data has been uploaded	1	1

Table 6: Reasons why the NBN Gateway does not currently meet data providers biodiversity data needs by providing access to species and habitat distribution data, designations and datasets

data collection systems currently in use (and increasing in number all the time). Greater links need to be built with the UK museum community as at present their databases and portals function in isolation from the biological recording community.

Future development of the NBN Gateway

People were asked whether ‘the NBN Gateway currently meets

all your biodiversity data needs by providing access to species and habitat distribution data, designations and datasets.’ Of the 137 responses to this question, we heard that 72% (n=98) do not feel the NBN Gateway meets all their needs, and only 28% (n=39) are happy that it does. The top three reasons for the NBN Gateway currently not meeting the needs of the users are:

- Incomplete data holdings within the NBN Gateway

- Limited access to Habitat data
- Restrictions on the data preventing use

The reasons from those who said the NBN Gateway does not currently meet their needs are summarised in Table 6.

People were asked if there are additional features that respondents think would add value to their experience of the NBN Gateway and responses are summarised in Table 7.

People were asked if the current display and interpretation of data on the NBN Gateway maps is adequate for their purpose. Of the 138 who responded to this question, 69% (n=95) said that the current display and interpretation of data on the NBN Gateway maps are adequate for their purposes. 31% (n=43) felt that they were not. Those that felt the currently display and interpretation of data on the NBN Gateway maps was inadequate for their purpose clarified that this was because of problems with the stability and design, specific problems with the Interactive Mapping Tool and a requirement to undertake more advanced analysis of the data holdings via the NBN Gateway. Further reasons are summarised below.

Infrastructure and data

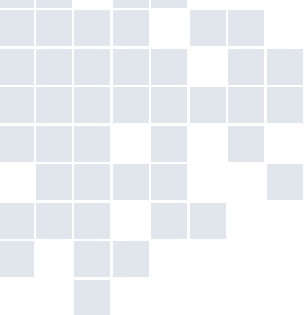
- The data holdings are often not up to date
- The NBN Gateway is down too regularly
- Gateway IV was better
- Need to raise awareness of Web Mapping Services

Interactive Mapping Tool

- Too slow and clunky
- Needs more filters
- Need to be able to save display criteria
- It is not clear that it is possible to make coincidence maps using transparency controls
- Need to be able to see more attributes
- Interactive map is not interactive – doesn’t differentiate between different age/date classes of records
- Cannot download data via Interactive Mapping Tool
- Does not show that you have zoomed past displayable resolution
- Take too long going through each grid square
- Absence records should sit as default below presence records
- Layers obscure records below when multiple records of different layer at same point

Feature	n	%
Ability to compare species distribution	85	57
Habitat and ecosystem layers	72	48
Improved visualisation system for mapping data	71	48
Phenology graphs showing expected emergence, /flowering/arrival times for species in your area	70	47
Easier links to organisations providing data and Local Record Centres etc.	65	44
Improved design of user interface	65	44
Summary data about what is available through the NBN Gateway	63	42
Additional information about species/ecosystems/habitats	58	39
Photos of species	52	35
Identification keys for species and ecosystems	49	33
Project ideas surrounding datasets for Undergraduate/MSc students	24	16
Education resources for schools etc.	22	15
Other <ul style="list-style-type: none">• Ability to distinguish between breeding and non-breeding records• Age class of data• Ability to flag records as dubious or incorrect and easily contact data providers to discuss issues• Associated species• Better data quality• Download data in GIS formats• Easier links to organisations and data providers• Default data viewed is validated and verified• Ensure basic functionality is working	19	13

Table 7: Additional features which would add value to the experience of using the NBN Gateway



Analysis

- Need to be more innovative about how we display data on maps, not just dots
- Need to be able to integrate data with internal data which cannot be made public
- Want to be able to distinguish between breeding and non-breeding records
- Maps do not show Watsonian Vice Counties
- There are better mapping styles and tools on other systems (CartoDB)No indication of frequency (hot spot maps)
- Data are not site specific
- Needs proper design process for different user groups.

Respondents were asked which mapping method on the NBN Gateway was most useful (see Figure 12). Of those that responded (n=132), the Interactive Mapping Tool was generally the most useful mapping method (64%, n=84), with those using the NBN Gateway for personal interest using the IMT more than those using the NBN Gateway for work. The grid map was the most useful tool for 36% of the respondents (n=48).

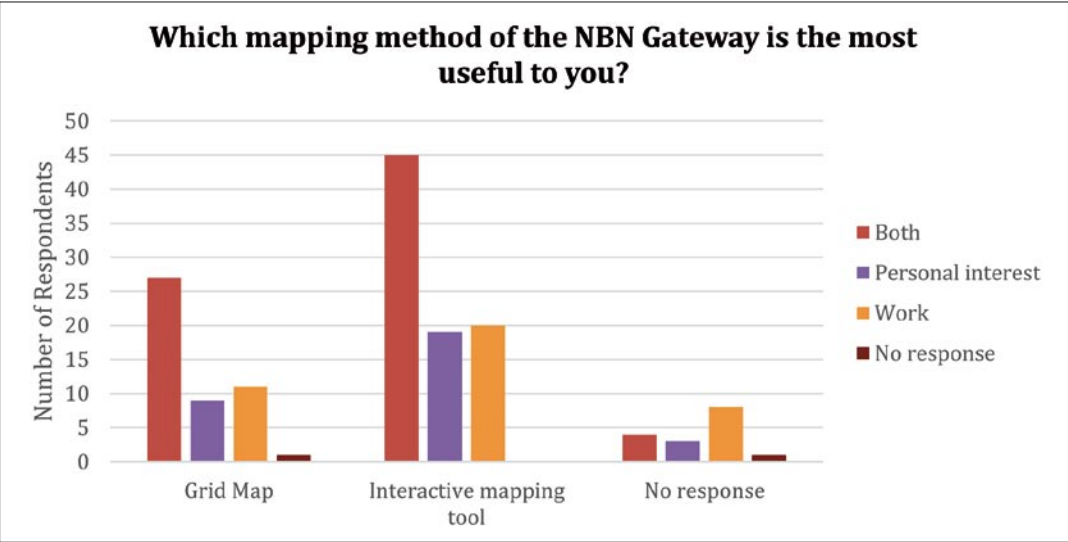


Figure 12: Use of Grid Map and Interactive Mapping Tool, displayed by why respondents use the NBN Gateway.

The reasons for preferring the Interactive Mapping Tool or the Grid Maps have been summarised below. There is confusion as to why the two functions are separate.

Interactive Mapping Tool (IMT)

The IMT offers more detail than the Grid Map. The interactive nature of the IMT is of value, allowing users to drill down into the data, zoom in and pinpoint records. Users often want to see the individual records and the IMT makes this easier to do. Users also like to be able to use the IMT to see the details of the record to go back to the original provider of the data. The ability to layer data, compare species and see habitat features associated with particular species is important and this helps to provide an overall impression to verify records.

Grid Maps

The majority of users who preferred the Grid Mapping tool do so because it is simpler to use and more reliable than the Interactive Mapping Tool. It provides a simple overview of data, and is great for single species mapping however this limits its use at times. Respondents like the useful tools which the Grid

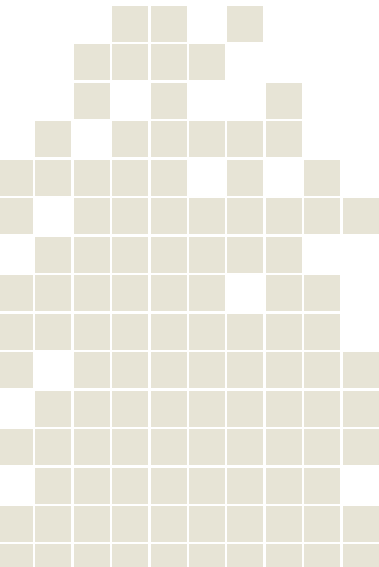
Map offers over the Interactive Mapping Tool such as the ability to see data resolution, to overlay vice country boundaries, add date ranges, see the data resolution and see the number of records held for a species. Users also find the Grid Map useful for REST services on their websites.

UK Species Inventory

The Natural History Museum maintains the taxonomy that underpins the NBN Gateway, Recorder6 and iRecord and it is also used by many organisations around the UK. People were asked if they were aware that the UKSI was maintained by the NHM and 81% (n=118) said they were aware, only 19% (n=28) were unaware. Suggestions for new names/taxa and amendments may be sent via email to Chris Raper (c.raper@nhm.ac.uk) and via the NBN Forum. People were asked if they found it easy to submit changes and additions to the UK Species Inventory. 67% (n=62) of respondents found it easy to submit changes and the remaining 33% (n=31) did not find it easy enough. Most respondents stated that they have not needed to submit updates or changes. However, the procedure is not as obvious as it might be, and it is unclear what information

is required to make changes and a suggestion was to add a link on the NBN website and in the form to the UKSI sandbox site.

Checklist owners were asked whether they would like to be able to maintain their checklist online, or at least suggest changes using a simple web application. Of the 33 respondents, 19 (58%) would like to be able to do this, and 14 (42%) would not. Those who responded that they would not want to do this clarified that they are not a checklist owner (n=3), there were concerns about the accuracy of suggestions (n=1), respondents felt that they did not have enough technical knowledge (n=2), they prefer the existing system of updating complete versions as and when they become available (n=1) and they do not have the time to make suggestions (n=5).



2. Review of NBN Gateway website



Introduction

In July 2014, the NBN Trust employed Cerulean Design Consultants to undertake a review of the NBN Gateway interface. This involved a review of user experience and the workflow for anyone using the NBN Gateway or Interactive Mapping Tool. The following report is a summary of the observations and recommendations.

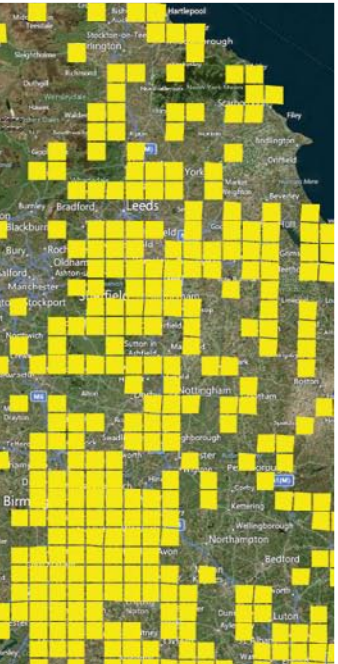
General observations and recommendations

Vision and Objectives

- Be clear about the vision and objectives for the NBN Gateway. Why has it been created? Who is it for? What constitutes “success” for the NBN Gateway?

Managing conflicting interests

- Develop a strategy for dealing with conflicting interests. Data providers and data users are both important stakeholders for the NBN, but sometimes the interests of those two groups may be in conflict. The data providers might



want to know everything about who will use their data and have veto rights over every usage. But the data users might want easy, direct access to data without having to jump through hoops.

Improve breadcrumb navigation

- Breadcrumb navigation should reveal the position of the current page in the website hierarchy, and not any other hierarchy that might apply to the current page. Often breadcrumbs indicate the path the visitor has taken to arrive at the current page.
- All items in the breadcrumb besides the current page should be links to a corresponding page in the website hierarchy.

Use AJAX to provide enhanced functionality

- AJAX is a web development technique where data is sent to and retrieved from the server without reloading the whole page or navigating away from the page.
- It allows new content to be loaded into the page on demand.



A couple of examples where AJAX could be used:

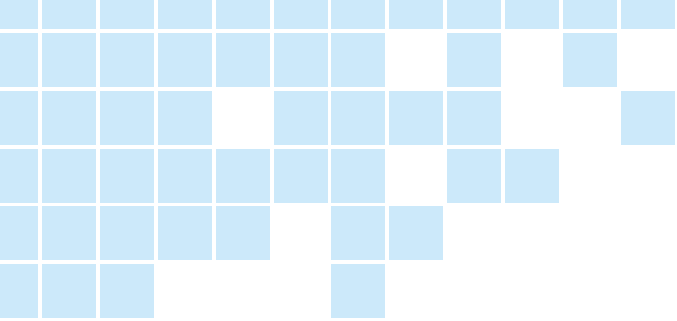
- o When displaying long lists of content, only the first group or “page” of list items is displayed initially. This allows the page to load more quickly than if the full list of items had been loaded initially. When the visitor navigates to the next “page” of items these items are loaded on demand.
- o Taxa exist in a hierarchy of multiple levels and thousands of items. If you want to visualise this hierarchy in “tree” format, AJAX allows for an interface where if one level of the tree is “expanded”, the child levels are loaded on demand. This means you have a page that loads quickly but offers a tree that the visitor can explore through all the levels without having to navigate away from the current page.

Explain technical and ambiguous terms

- Provide short explanations of technical or ambiguous terms in a custom “tooltip” (not the default browser tooltip as the delay in this appearing can be too long).
- Indicate the presence of a tooltip graphically, with a dotted underline or a question mark icon.
- Some examples of terms that would benefit from additional explanation: “designation”, “species richness map”, “zero abundance”.

Use “Live” maps generated via the Bing Maps API

- The Bing Maps API has been used for the Interactive Mapping Tool (IMT). It should be used for all maps on the NBN Gateway website whenever possible.
- Embedded maps can include zoom and pan controls, but do not need to include all the features of the IMT.
- It should also be possible to use Bing maps in the NBN Gateway Web Services.



Interactive Map Tool (IMT)

- See also the following chapter for observations and recommendations on the IMT.

Opening the IMT

- If a user can view a list of records or datasets anywhere on the NBN Gateway website they should also be able to load this same list of records or datasets into the IMT. Provide a link for this alongside all lists of records and datasets, including search results.
- If there are technical limits to how much data the IMT can handle, this can be dealt with by restricting the number of “active” datasets displayed at any one time.

Improving pagination of lists

- Pagination controls need to be at the top of the list, otherwise the position of the controls jumps around depending on the length of the list items.
- If the list is so long that loading the full list would create an unacceptable delay in the loading of the page, then this calls for “true” pagination where each page of list items is loaded on demand, perhaps using AJAX. Currently there are many large lists (10MB or more) that must load in their entirety every time the page is viewed.
- If the list of results is of short to moderate length, consider if pagination is required at all. A single scrollable list is more usable in many instances.

Utilising photos

- Photos provide information that cannot be communicated through text, and make a page more engaging and varied. So if there is an opportunity to enhance a page or section with photos then this should be taken.
- When offering a gallery of images relating to a species, site or habitat then it’s often a case of “the more the better”. To build a useful resource of images the NBN could:
 - o Source images from websites that provide images under a licence that would allow their reuse by NBN, e.g. iNaturalist, Encyclopedia of Life, Flickr, Wikimedia.
 - o Approach organisations that have collections of images held under more restrictive licences to see if an arrangement can be reached that would allow their use, e.g. ARKive, commercial wildlife photographers.
 - o Invite NBN Gateway visitors to submit images. This would require a moderation process for the images, and ideally will capture the location where the photo was taken. The submission tool could check for EXIF location data in photos from GPS-enabled cameras, and also allow the submitter to select a location on a map. Having location data for photos would allow the photos to be used in the Locations and Habitats sections of the NBN Gateway.

Record a Sighting

- There needs to be a way for individuals to submit observations so that these observations appear on NBN Gateway.
- If all iRecord observations are not making it onto the NBN Gateway and this cannot be changed then perhaps a new submission tool needs to be developed within the NBN Gateway.

Preventing empty views

- If interacting with a control will produce no results or content then the control should be disabled in a way that’s visually obvious or the control should be removed.

Using filters to refine searches

- Presenting more than one search box on a page can be confusing for users and may cause a moment of hesitation that distracts from the task at hand: “which search box do I use?”
- Filters are a powerful way of refining a broad search. Instead of offering a separate search box just for species, or just for designations, there can be a single search box that searches everything and then the visitor can filter the results so they see, for example, only species results or only designation results.
- Filters can be combined for precise control over results. For example, a visitor can filter results to return

only species in the Mammalia class that are designated “Nationally Notable” which have recorded observations in Lancashire between 2000 and 2010.

- Every results list should have a link to view the individual records and datasets that relate to the search results, and a link to view those related records in the IMT.
- Lists are very similar to search results – you can think of a list as a search for everything that already has a filter or combination of filters applied. Therefore the same “engine” that powers the enhanced search functionality being proposed can power the list views in “Browse Species” or any of the other browse pages. Visitors could apply filters to those lists to refine them.
- Both search results and browse list pages would be improved by enriching the items displayed. Some things that could appear in an item, where relevant, are:
 - o thumbnail image
 - o taxon rank
 - o additional species names
 - o “quick links” for things such as recording a sighting, submitting a photo, viewing species distribution in the IMT
 - o text excerpt from the linked page with highlighted search term
 - o Some visitors would find it useful to be able to download search results and lists as a CSV.

Using charts

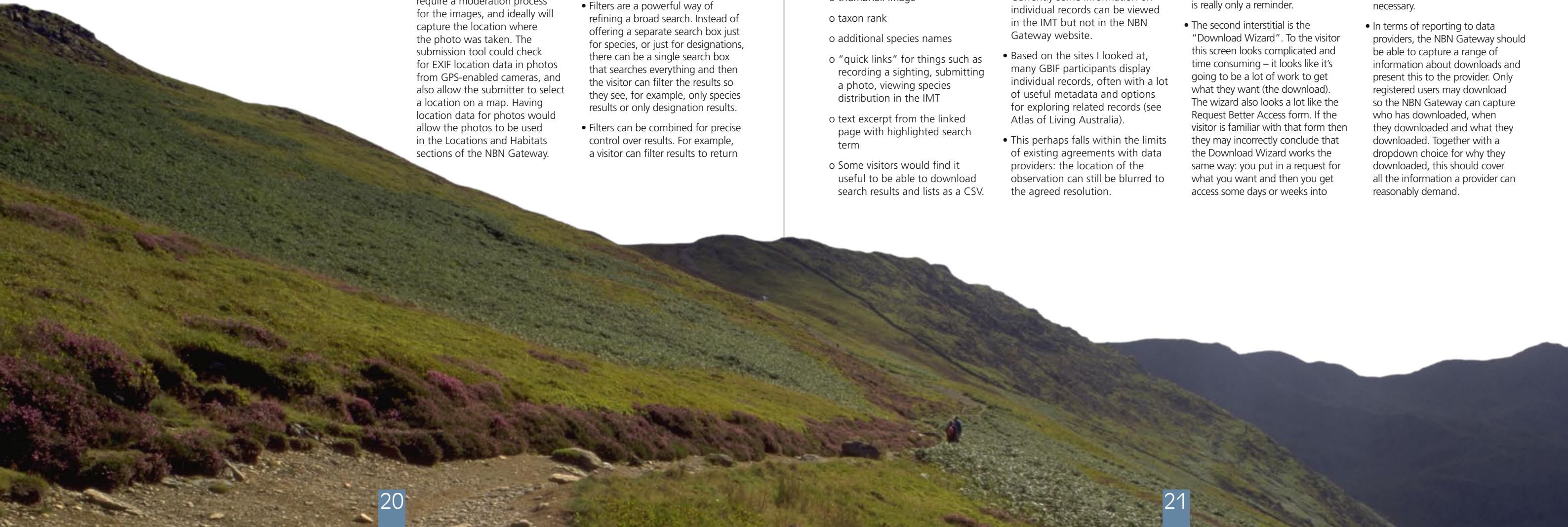
- Use charts such as pie/doughnut, bar and line charts to help visualise data and statistics. For instance, use charts to visualise the proportion of data with public access at full resolution, the proportion of data coming from countries and counties, the number of records collected across the months of the year.

Viewing individual records

- Any data that can be downloaded should also be viewable in the NBN Gateway website. Displaying records in the NBN Gateway website would allow for enhanced layouts and visualisations beyond what the visitor will get in a downloaded CSV spreadsheet, and make it easier for the visitor to determine what data they want to download.
- Any data that can be visualised on the IMT should also be viewable on the NBN Gateway. Currently some information on individual records can be viewed in the IMT but not in the NBN Gateway website.
- Based on the sites I looked at, many GBIF participants display individual records, often with a lot of useful metadata and options for exploring related records (see Atlas of Living Australia).
- This perhaps falls within the limits of existing agreements with data providers: the location of the observation can still be blurred to the agreed resolution.

Minimising barriers to accessing and using data

- One of the main objectives of the NBN Gateway is to encourage visitors to access and use data. Therefore a key focus needs to be making it easy for visitors to access data, and this includes minimising unnecessary barriers to accessing the data. Where possible, let the visitor do what they are trying to do as directly as possible.
- When a visitor attempts to download data, they are presented with two interstitial dialogues before they are able to do what they are trying to do: download data.
- The first is the Terms & Conditions dialogue. It is important that visitors understand and consent to the terms and conditions, but aim to make this section as concise as possible. Clicking “Accept” doesn’t bind the visitor any more tightly to the terms and conditions – they have already consented to these by registering and by using the site at all (according to the statement in the website footer). So this dialogue is really only a reminder.
- The second interstitial is the “Download Wizard”. To the visitor this screen looks complicated and time consuming – it looks like it’s going to be a lot of work to get what they want (the download). The wizard also looks a lot like the Request Better Access form. If the visitor is familiar with that form then they may incorrectly conclude that the Download Wizard works the same way: you put in a request for what you want and then you get access some days or weeks into the future. Both these factors may lead to the visitor abandoning the attempt to download data.
- The Download Wizard is much more complicated than it needs to be. Rather than present the user with a list of options after they have attempted a download, it would be preferable to offer those options on the screen where the download button is, perhaps in a collapsed accordion if the options are infrequently used.
- It would be better to combine these two interstitial dialogues into one, with a single dropdown list to select the reason for download. As a comparison, the interstitial dialogue for downloads on the Atlas of Living Australia is concise and makes it clear that the desired download is imminent, yet still covers the important areas.
- Bear in mind that there is no meaningful difference between viewing data (on the IMT) and downloading data. Technically, you are downloading data when you view it. So consider how many additional restrictions are really necessary.
- In terms of reporting to data providers, the NBN Gateway should be able to capture a range of information about downloads and present this to the provider. Only registered users may download so the NBN Gateway can capture who has downloaded, when they downloaded and what they downloaded. Together with a dropdown choice for why they downloaded, this should cover all the information a provider can reasonably demand.



Keep the issue of public access to full resolution records in the forefront

- Many data providers place resolution limits on public access to their data, and this reduces the accuracy and usefulness of that data, and therefore reduces the positive biodiversity outcomes that access to accurate data delivers.
- When addressing data providers in the Getting Started and Documentation sections, make a persuasive case for open public access.
- Use statistics and charts to show the degree of data openness for species, locations, datasets and data providers, with links to information about the issue. This will serve as a reminder to data providers to assess whether they could increase the openness of submitted data they have already submitted or review their data sharing and use policy. If they can see that other organisations are embracing open data then this might be a persuasive factor.



Specific observations and recommendations

Home page & site-wide issues

- The home page should serve as an introduction to the NBN Gateway for new visitors.
- It should showcase some interesting information from important sections of the site to entice the visitor to explore these sections.
- It should offer brief instruction in using the NBN Gateway so the visitor can start using the main NBN Gateway tools and features immediately. A short video screencast is a good solution for this, with a link to the Getting Started section for more advice.
- It should let new visitors know that they can participate in providing data to the NBN Gateway.
- Another important message for new visitors is that they need to register to get the most out of the NBN Gateway.
- The home page needs a succinct value statement introducing the NBN Gateway: what the NBN Gateway is and why it's good.
- The current logo used for the branding the NBN Gateway is too similar to the NBN logo. Visitors will move between the NBN and the NBN Gateway website regularly so the banner areas of the two websites need to be sufficiently different for the visitor to easily tell them apart.
- The logo in the header should operate as a link to the home page. This is standard practice now and visitors expect it.
- The Latest Datasets box should not be a fixed height but should expand to fit its contents. Currently the names of long datasets are cut off.
- The RSS feed for latest datasets does not contain links to the datasets on the NBN Gateway website (it would be more useful if it did).
- The expectation is that items in the main menu of a website will be

links to sections on that website. To find that clicking a main menu item delivers them to a different website frustrates the visitors' expectations. Therefore, links to other websites (NBN website, Forum) should not be in the main menu bar – links to these websites can appear elsewhere in the website design.

- The text is too small and the line spacing too tight for comfortable reading.
- The website should be "responsive", meaning the layout should adapt to different device widths. This allows for better use of larger screens (the page layout can be wider), and better support for devices such as tablets in portrait format, small tablets and smartphones. NBN can decide on the narrowest device width the NBN Gateway will support (perhaps it isn't practical to support smartphones on the IMT).
- The HTML Title tag (the text that appears in the browser title bar and in the browser tab) should be specific to the page, usually reflecting the main heading on the page.
- Currently only a few HTML Titles are used on large numbers of pages. For instance, currently all taxon pages have the title "NBN Gateway – Taxon", when it should be something like "Erinaceus europaeus – NBN Gateway". And "Records for Equisetum palustre L. [Marsh Horsetail] in SS44 – NBN Gateway" instead of "NBN Site Report".
- Having informative HTML Titles makes it easier for visitors to identify tabs if they have multiple tabs open for the NBN Gateway, and also improves search engine results.

Taxon pages

Grid Map

- Is the Grid Map necessary? Can't the features of the Grid Map be incorporated into the IMT if they're not already? It would be simpler for new users if there was only a single map tool to learn.
- Download of 2km/10km squares wasn't working when I tried it.



- The link to the IMT is a Javascript link and is impossible to open in a new tab.
- When viewing records for a species for a specific site, the Interactive Map link should be to a map of only those records within the site and centre/zoom the map to the site. Instead records for all sites are displayed and the map is zoomed to the whole UK.

List of datasets

- The columns in the table have no headings so it's not immediately clear what they contain. This problem is compounded by the fact that the column order (i.e. Provider, Dataset) is different to the Browse Datasets table (i.e. Dataset, Provider).
- Listing the number of records in each dataset in a separate column would make it easier to scan this information.



- Rather than controlling the sort order via a dropdown control, the table could be sorted by clicking on the table column headings.
- Data providers should receive greater prominence on the taxon pages. In many ways the data provider is more important than the dataset, and if visitors can find out which organisations have done surveys on their favourite species they might decide to join that organisation, boosting the number of people involved in collecting data and reinforcing the value of the NBN to data providers.

There are many opportunities to make the Taxon pages more interesting and engaging.

- Photo gallery, with the opportunity for visitors to submit their own photos
- Larger, "live" map that can be zoomed, with a link to the full IMT.

- A description of the taxon, perhaps sourced from an external resource. Additional detailed descriptions could go on a separate tab.
- A list of links to online resources such as GBIF and ARKive.
- Statistics on the species records and chart visualisations of these statistics.
- Allow visitors to sign up for notifications when new datasets or observations are added for the species.
- A "quick link" to start a discussion or ask a question about the species on the NBN forum.
- A link to allow visitors to record a sighting of the species.
- A link to download a summary fact sheet for the species in PDF format.

Browse Sites

- Browsing via grid-square has its place, but many visitors would be more engaged if there was greater flexibility in determining sites. They might want to get a report for areas above 800 metres elevation, or the area within a polygon they draw on a map, or the area within a five kilometre radius of a street address, or named area such as "Greater Manchester".
- To account for this greater flexibility I think "location" is a better term than "site".
- For "boundary" sites, there should be a link to view the site boundary on the IMT.

- The map interface that is shown when a boundary site has been selected is confusing:

It's different to both the grid map and the interactive maps used

elsewhere in the site. The styles of maps should be consolidated as much as possible – three distinct styles of map is too many. There's no explanation of how the map works, and the map works in the opposite way to what one would expect. I think the expectation is that the list of sites works as a control on the map (as per other maps in the NBN Gateway, e.g. selecting within the list of datasets updates the display of the grid map). But if you click on a site in the list this does not affect the map and instead the user is navigated away from the map to a Site Report. This page is unusual in that the map acts as a control on the list – you change the map view and the list updates.

Site Report

- Many breadcrumb items are not clickable links.
- The breadcrumb seems to introduce items that are not part of the hierarchy. For example: Reports > Sites > SS44 > Groups > insect - beetle (Coleoptera) > Species > NHMSYS0020109270 > Observations
 - o In this case “insect - beetle (Coleoptera)” is the group and “NHMSYS0020109270” is the species (see separate comments about species identifier in URLs and improving breadcrumbs). Adding these extra breadcrumb links is confusing and unnecessary. If the user wants to go back to browse groups in a site they need only click “SS24”, or if they want to browse species in a group they need only click “insect - beetle (Coleoptera)”.
 - o The correct breadcrumb for this page would be: Browse Sites > SS > SS44 > insect - beetle (Coleoptera) > Rutpela maculata
- Currently, maps for certain Site Report pages are very pixelated, e.g. the map for site “48 Boswell Street, Holborn”. Using Bing maps would solve this problem.
- The link to the IMT should result in a map where the view is centred and zoomed to the current site location (currently the link is to a map that is zoomed to show the whole UK).
- A link to the IMT is only offered when a site report has been narrowed to include only a single species. It should be possible to switch to the IMT for a site regardless of how narrow or broad the species selection is.
- The number of species “activated” on the IMT could be limited if there is a problem displaying a large number of species simultaneously (see separate suggestion of allowing species layers to be “inactive” but not deleted altogether from the Legend panel).
- Taxon groups should have a headline showing the total number of recorded species at the site, and groups should be expandable to view sub-groups/species (loaded via AJAX).



- Pagination controls for navigating species list should be at the top of the list, not at the bottom. Currently the position of the controls jumps around because the length of the list varies as you page through it. A single scrollable list without pagination might be a simpler and better way of displaying this species list.
- Location reports for an individual species should provide a link to the species’ Taxon page.
- List of datasets should include column with link to Data Provider for each dataset.
- Links to Interactive Map and Download Records use Javascript when a simple anchor URL could be used. Javascript links should be avoided where possible because they disrupt normal browser link options available to the user (open in a new tab, etc.) and they hide the URL of the resource.
- Allow users to submit photos of a location. There could be photo galleries for photos of the location

(landscape photos), and photos of species occurring within the location.

- Include a description of the location where available (perhaps from an external resource such as Wikipedia).

Browse Datasets

- Provide a button to “Submit a Dataset” to prompt organisations that have datasets that have not been provided to NBN.
- These pages are currently headed with the name of the dataset, but there needs to be an additional heading of “Dataset metadata” – the user isn’t actually viewing the dataset here, they’re viewing the metadata.
- If a tab is empty of content, don’t display the tab.
- The public access resolution statement on the “Access and Constraints” tab needs a note to explain that the actual records exist in a higher resolution, with

a link to the “Geographical” tab where the actual resolution is displayed.

- The temporal chart could provide more detail, e.g. an additional bar chart showing number of records collected per month in a given year.

Data Providers

- The display of the list of datasets provided needs to be tidied up. It’s currently difficult to read, with inadequate separation between list items.
- The dataset title should align with the top of the dataset description, not with the centre.
- Add statistics and chart visualisations of these statistics for the data provided by an organisation, especially the proportion of records with open access at full resolution.
- These profile pages may be the first port of call for NBN Gateway visitors who are interested in

joining an organisation and increasing their participation in data collection. Therefore the profile pages need to be lively, friendly and inspiring. The pages need:

- o An introduction explaining the organisation’s areas of interest and the types of work and activities its members participate in.
- o Photos, especially of people doing data collection or engaging in the social aspects of being a group member.
- o Prominent contact information, along with a button allowing the visitor to apply for membership where this is possible.

Browse Habitats

- Some named habitats are already available on the IMT, but there needs to be more explanation of this on the NBN Gateway website and a section where visitors can browse the list of habitats and use filters to combine habitats with species, locations, dates, designations, datasets, etc.
- Some things visitors will want to do with Habitats:

- o View the extent of each habitat in the IMT.
- o Overlay taxon occurrence records inside a habitat layer.
- o Download the habitat dataset (ESRI ARC GIS shape file, CAD, .kml).
- o List which key species can be found in each habitat type (either keystone native species or invasive species of concern) and cross reference those species records available through the NBN Gateway.
- o Load a series of species in the IMT and then derive which habitat(s) they would be found in.
- o View photos of habitats, and see photos of habitats near a given location.

Browse Designations

- ‘Designations’ is not an intuitive term and some introductory information would be useful.
- Use a glossary-type tooltip for brief additional info on each designation in the list.

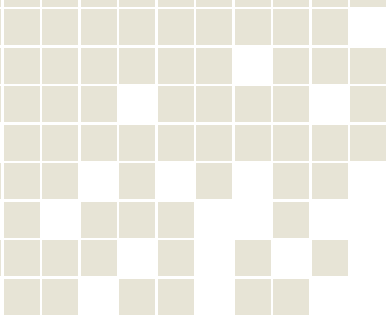
- There’s no need to abbreviate “National Legislation” to “Nat Legislation”.
- There’s no need for accordions – it would be preferable to see the full list, separated by headings.
- ‘The designation detail page should have links to external resources explaining the designation (e.g. IUCN website).
- It would be nice to have the tree structure for species in a given designation expandable down to the individual species instead of having to navigate away for each species group. See the earlier suggestion for an AJAX-powered taxa tree.
- Another way to present designation information would be to show a rich list of designations with introductory text about each designation and filters to find designations including a particular species, etc. Lists of species within a designation could be filterable by location, presence in other designations, etc.
- On the IMT, “designation” should be added to the search box hint as one of the items that can be added to the map.

- Designations are important, but as a section on the NBN Gateway I feel that it’s less substantial than the other sections. A visitor will want to see what species are in a designation list, and will want to use designations to filter lists in other sections of the website. For detailed information about the designation and the organisation responsible for it they will probably be directed to external websites.
- Given the limited space in the main menu and the objective of simplifying and prioritising the navigation, I suggest moving the Browse Designations section to somewhere lower in the hierarchy (perhaps inside the “Getting Started” section) and putting Browse Habitats in its place in the main menu.

Examples of Use

- The examples of use belong on the NBN Gateway website rather than the NBN website. The NBN website could have a single featured use (syncd with the featured use on the NBN Gateway homepage), with a link through to the NBN Gateway for more examples.
- The list of examples should focus on quality rather than quantity. Currently there are too many examples and many of them link to websites that are out-dated, broken, or are just not very inspiring.
- Identify the different types of use (this might include different target markets) and give one good example for each type.
- The NBN Trust could consider creating a website demonstrating how NBN Gateway data can be used, perhaps focussing on a popular species group (“Fascinating Frogs”). This would serve as an inspiring showcase of what is possible.
- The NBN Trust is well-placed to utilise and showcase the power of the NBN Gateway because it understands the NBN Gateway better than anyone.
- Building your own showcase gives you control over the resulting interface so you can ensure it looks good and works well.





Documentation

- Navigation is poor:
 - o Sidebar navigation order doesn't match in-page navigation lists.
 - o There is no "active" state in sidebar navigation to indicate where you are (particularly important if you arrive at the documentation by following a link from elsewhere on the site/internet).
- The documentation would be greatly enhanced by including screenshots and videos.
- When mentioning a type of map (e.g. EasyMaps service), show an example of the map.
- Videos are a great way to illustrate advanced interfaces like the IMT. Viewers can follow the demonstrator's cursor and learn where important controls are placed in the interface.
- The search box and user account links are missing from the header in the documentation section.
- It's fine to make the documentation a "sub-site" independent from the main NBN Gateway website (many websites use a subdomain such as docs.domain.org.uk), but the layout of the documentation section should make it clear to the user that they have navigated away from the main site. Currently the documentation section looks like the rest of the NBN Gateway site, so it's confusing to have functions disappear from the header.
- The NBN Gateway documentation should be first in the menu, not the Web Services documentation.
- Creating a NBN Gateway user account should be first item, rather than "Getting better access to records" (you can't request better access until you have created an account).
- Completing the documentation should be a high priority – people aren't likely to use a tool if they can't access information on how to use the tool
- Right from the start the reader is going to be confused. The introduction to the NBN Gateway documentation states:
 - o "The guidebook is split into two sections. An introduction to using the Gateway resources - ideal for anyone wishing to gain a sound understanding of what the Gateway is. And a step by step guide on how to use the main Gateway functions - use this if you just want to get stuck in and start using the Gateway".
- Firstly, neither of these sections is in the documentation currently. Secondly, the explanations seem to be transposed. Surely the "introduction" is for people who



"just want to get stuck in" and the "step by step guide" is for "anyone wishing to gain a sound understanding"?

- Provide a quick introduction as well as detailed documentation. Most new users won't spend hours reading the full manual. Videos called "A three-minute introduction to NBN Gateway" and "Five neat things you can do with Gateway Web Services" would help them get started, and once they're "hooked" they can return for more detailed instruction.

Accordion controls and Tree controls

- Accordion controls are blocks of content that can be collapsed so the content is hidden or expanded so the content is visible. Tree controls present a hierarchical view of information – like accordions they offer a way to expand and collapse sections of content but they can offer multiple expandable levels and are usually used for hierarchical lists.
- If there is only a single level of content that would benefit from being collapsible (e.g. if the effect of presenting all the content at once would be overwhelming for the visitor), then use an accordion control.
- The Request Better Access page makes good use of an accordion control.
- The species lists in the Browse Designations section use a control that looks like a tree control but only contains a single level of content. In these cases an accordion such as that used in the Download Wizard would be a better choice as it is more intuitive and easier to use because the clickable target for expanding/collapsing is larger.
- Ensure that the state of the expand/contract icon toggles along with the accordion/tree content. So if a "+" is used to indicate a collapsed accordion, this should change to a "-" when the accordion is expanded. Currently there are controls on

the NBN Gateway that display a "+" icon even when the content is expanded.

- 'A taxa list is an ideal candidate for a tree control. To avoid unloading unnecessary items and slowing down the page load, each subsequent level in the tree can be loaded on demand using AJAX. This would allow the visitor to "drill down" through the whole taxonomic tree, from kingdom through to individual species, without having to navigate away from the current page.

Tables

- Table cells need more padding.
- Table columns should have headings in almost all cases.
- The width of tables should be appropriate to the data in the table. If a table only has two columns of brief text (e.g. table of record resolution on Geographical tab of dataset), then having the table span the full width of the page makes it difficult to read across the table rows.

Miscellaneous

- Indicate (or disable and indicate) links and controls that will not work as expected if the visitor is not registered and logged in.
- Web Services: this name is too vague (everything on the internet is a "web service"). "Gateway Web Services" would be a bit more informative. Web Services needs a higher profile and an introduction explaining what is offered and why a visitor might want to make use of the features.
- Species identifiers: internally the NBN Gateway can use whatever unique identifier it needs (e.g. "NHMSYS0020109270"), but when references to the species are displayed on the frontend (in URLs or in breadcrumbs, for instance) a human-readable alias should be used (e.g. "Rutpela maculate" in a breadcrumb and "rutpela-maculate" in a URL).



Review of Interactive Map Tool

The Interactive Map Tool is a powerful application and it offers a lot of features, a number of improvements can be made.

Side panel

- This should be open by default, as it contains essential tools for understanding and working with the map.
- Make the side panel fully opaque. The partial transparency harms rather than helps usability in this case because it makes the contents of the panel harder to decipher.
- It's not obvious how to access important controls like the settings for items in the Legend tab.
- Use a cookie to check if a user has visited the interactive map before. If they're a new user, load the map in "tutorial mode" where important controls in the map are highlighted with overlays that explain their function. Also include a button to show these overlays on demand.
- At the very least, each map control needs a hover tooltip to indicate a) that it is a control, and b) what the control is for

- Enable layers to be toggled on and off without having to delete them altogether from the Legend panel.

Records tab

- It is understandable why records lists may need to be paginated, but 10 records per page are too few. The search and sort functions work on the full list, not the items shown on the current page, which may not be intuitive. Records per page should be set as high as practical, as avoiding unnecessary pagination makes the search/sort controls more intuitive.
- Make links to the NBN Gateway for as much information in the list as possible: taxon name, location, recorder, etc. At the moment, organisation is the only linked field.
- The tab metaphor suggests switching between sheets of information that are persistent – i.e. you can navigate to a different tab without "losing" the information on the current tab. But list of records is lost when changing tabs.
- Rather than have the action of the cursor change automatically depending on tab, give the user

a simple control for switching between pan and selection behaviour.

- When the map initially loads the cursor pans, but if they click the Records tab they can suddenly no longer pan and only select, then if they make a selection they're suddenly back in pan mode and it's not immediately clear how they can make a new selection (you have to click the "Redraw selection" button at the top right).

Search box

- "Designation" should be added to the search box hint as one of the items that can be added to the map.
- The method of adding species/site boundaries/habitats/designations to the map via search is fine, but it requires the user to already know the name of the species/site boundary/habitat/designation they want to view.
- The items that make up the lists of species/site boundaries/habitats need to be easily accessible on the NBN Gateway so that the user knows what can be added to the map.

- The species listing is fine – you can already browse by species and there are links to display a species on the IMT.
- You can browse by site boundary, but there is no clear message to the user that these site boundaries are available for display in the IMT. Also, when a site boundary has been selected via Browse Sites, there is no link to display the current site boundary in the IMT.
- There is no Browse Habitat option in the main navigation so there's no obvious way to find out the list of available habitats.
- As well as providing lists of mappable items on the NBN Gateway, it would be good if there was a browse option inside the IMT to add items to the map. It could be challenging to present a user-friendly interface for adding species to the map via browse, but the list of site boundaries and habitats is much smaller so it would be easy to present a list of these within the IMT.

Filters

- Being able to filter the data that are displayed on the IMT would make it much more powerful.

- Filters could remove records based on data quality (whether data has met Record Cleaner rules), presence on Designation list, date of records, species groups, etc. See the main NBN Gateway Review for more discussion of filters.

Map markers

- Map markers are unclickable, but the user expects to be able to interact with the squares to reveal more information. Drawing a box around squares is useful for multiple squares, but individual squares should still be clickable.
- Some simple information could also be revealed when hovering a square.

Map view mode

- Map view mode selector at bottom right shows the wrong current view mode, and does not show all view modes (there are five).
- The "OS" view mode seems to be buggy. When I tried this view the full map was not redrawn properly (some map tiles do not load).
- It would be nice to give the user greater control of which map

layers are visible. For instance, enable them to view "Shaded" mode with the place name labels turned off. Or view "Outline" mode with vice county boundaries shown.

Datasets

- Having the list of datasets appear on both the Datasets tab in the side panel and in the records settings dialog is confusing. The functionality in each location is different, and it's not immediately obvious what the functionality of the list is in each setting. For example, a user might think that clicking a dataset name in the Datasets panel will filter the map to show only records from that dataset, when in fact it takes them away from the IMT to the dataset meta information.
- Aim to combine the functionality of these two dataset lists, probably by removing the Datasets tab from the side panel and adding links to the metadata to the records settings dialog, and mark these links with an "external link" icon to indicate to the user that these links will navigate them away from the IMT.

Species richness map

- There is no key to reveal what colour codes indicate.
- The base colour in the gradient should be selectable by the user – otherwise it isn't possible to distinguish between designations when more than one designation is displayed on the map.

Empty results

- Where possible, remove controls that will produce an empty result, or at least provide an indication that the use of the control has produced an empty result.
- For example, if there are no records viewable to user at 1km resolution remove the "1km" control or display a message when the control is clicked indicating that no records are available to the user at this resolution. Currently if there are no records the user just sees an empty map and may think this is an error.

Miscellaneous

- Links should indicate when they will take the user away from the IMT, e.g. "Datasets" panel links

- A "zoom to records" button would be useful – a button to zoom and centre the map on the visible records.
- The zoom setting is not stored correctly in the map URL (the zoom level that is stored seems to be zoomed out one step from the actual current zoom level). This makes it impossible to accurately bookmark or share the link for the current map view.
- Provide linking between the IMT and the NBN Gateway pages wherever possible. For example, when an area is selected in the IMT, provide a link to the corresponding Site Report page on the NBN Gateway.



3. NBN Gateway needs analysis workshops

Background

The NBN Trust organised two workshops to examine user needs for the NBN Gateway and these were held on Thursday 20 November 2014 at the Natural History Museum in London. The results of all the workshop discussions are presented here in this report.

Participants:

The following people attended the NBN Gateway user needs analysis on Thursday 20 November 2014:

Barnaby Letheren	Natural Resources Wales
Paula Lightfoot	NFBR / Newcastle University
Matt Smith	Tachinidae Recording Scheme
John Newbould	NBN Honorary Member
Bas Payne	
Charles Roper	Sussex Biodiversity Record Centre
Martin Goodall	ERCCIS
Maria Longley	GiGL
Keith Porter	Natural England
Andy Webb	Natural England
Esther Hughes	Marine Biological Association
Teresa Frost	Cumbria Biodiversity Data Centre
Thomas Starnes	Amphibian and Reptile Conservation Trust
Paul Gilbertson	JNCC
Steve Whitbread	Northants BRC
Tom August	CEH
Marina Flamank	Environment Agency
Oliver Grafton	Natural England
Will George	RSPB
Matt Davies	GiGL
Jonathan Cooper	CEH
Tom Hunt	ALERC
Bob Foreman	Sussex BRC
Martin Harvey	Open University
Ian Wallace	National Museums Liverpool
Rich Burkmar	Field Studies Council
Charlie Barnes	Greater Lincolnshire Nature Partnership
John Millar	Amateur Entomologists' Society
Peter Doherty	Atlas of Living Australia
John Sawyer	NBN Trust

Purpose

The purpose of these workshops was to determine how the NBN Gateway should be developed and improved over the next five years. The information gathered during these workshops will be used to inform the development of the new NBN strategy and then technical action plans that will be implemented by the NBN team.

Workshop structure

The workshop included an introductory presentation about the NBN Gateway, the current situation, the users, and what the current NBN Gateway does, what the NBN Trust heard in response to a recent questionnaire and to introduce concepts for a new design. This session also included a presentation by Peter Doherty (Programme Manager of the Atlas of Living Australia) about some of the technical infrastructure that has been built and how the Australian system works (see <http://www.ala.org.au>).

There were then two breakout sessions. The first of these was to examine:

- The NBN Gateway objectives – how can they be improved?
- Issues with the NBN Gateway and what we can do better?
- The name and new design concepts

The second was to examine:

- What needs to be done to meet the needs of each NBN Gateway user group?
- What does the Network need to do to achieve this?



Session 1: NBN Gateway objectives, name, design and issues

Potential revised objectives

Workshop participants discussed the new draft of NBN Gateway objectives (listed in Table 1). Additional comments are provided in the right hand column.

Additional comments included:

- The need to meet the different needs of different users and need to know who they are to help firm up objectives.
- NBN Gateway needs to have a clear aim.
- Objectives could be a simpler statement i.e., Comprehensive, Reliable, Accessible, Usable / Open

Issues identified with the NBN Gateway

Workshop participants identified additional issues with the NBN Gateway that have been classified into seven groups. They are as follows:

NBN Gateway functionality

- Need to stress the importance of partnership in the NBN Gateway initiative.
- One NBN Gateway does not fit all needs. Need to be able to customise to different needs.
- Need to improve reliability of the infrastructure.
- Need to focus on metadata to help users understand the data better.
- Issue that people searching Google to find the nearest squirrel are not directed to the right place at present.
- Need to provide habitat layers and other base layers – the absence of these creates problems.
- Lack of information about species limits filtering options. If species were linked to additional information or attributes then filtering would be more powerful

e.g., functional group such as pollinator, habitat requirements, co-occurring species, taxon groupings - Atlas of Living Australia has some powerful tools for this.

- Need for shapefile downloads.

Data flow

- Issue with the processes by which data arrives at the NBN Gateway e.g., from iRecord.
- Don't throw the baby out with the bathwater – data removed because it is perceived as 'unfit' may preclude unknown future uses.

Data access

- Data should be open on the NBN Gateway – as in the true definition of Open Data.
- Issue of easy access to data.

Relationship with data providers

- Need to improve time to market – i.e., time it takes for data to go from the record being made to arriving on the NBN Gateway in a usable format.
- Need for a streamlined upload system or even better a data harvesting system from suppliers.
- Issue of data exchange format being quite limited – need to expand this to include more standard attributes.
- Better user interface for granting access to data.
- Filter requests for already open data, 5 out of 6 requests received fall into this category.
- Need to provide for license-controlled access on the NBN Gateway. This is all handled externally at present. This is time consuming.

Relationship with recorders

- Need to motivate recorders by allowing them to be promoted if they want that.
- Issue of data providers and recorders being unable to self-manage their data.
- Need to report on data and record quality. There are other

models such as Atlas of Living Australia.

- All records should have a globally unique number throughout the entire NBN.
- Need to reinstate option to annotate and comment on records.
- Issue of verification versus determination versus validation.

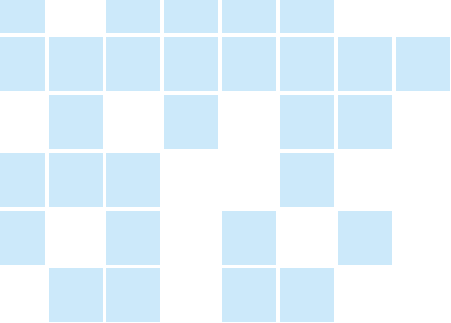
General issues

- Issue of the nature of 'publication' to the NBN Gateway – is it permanent, in perpetuity or is it working data.

- Data quality is a major issue – provide a way to show a map of only verified records on the NBN Gateway.
- Issue of whether all data providers are equal.
- The NBN Gateway is not a published atlas.
- The NBN Gateway is not yet engaged in data interoperability across the web.
- What does it mean to be an NBN partner or member – as opposed to a data provider only?

Draft NBN Gateway objective		Comments
To provide:	A trusted, national portal for UK biodiversity data and information for both species and ecosystem	Change 'portal' to 'hub'. Need to define what 'data' is. Not just species records. Should this include reference to standards? Will NBN Gateway be able to access all the data?
	Download of raw biodiversity data and information products	Reference the need to provide for the download of existing information products that exist already.
	Mapping, analysis and visualisation of biodiversity and environmental data and trends and changes	
	Access to data collection, management and research tools	Provide open web services and open code.
To educate:	People about UK's biodiversity, the names of species, references, images and local neighbourhood wildlife	Ensure a distinction between NBN and other wildlife organisations. Provide best practice examples. Reference wildlife locally and nationally. Suggested that ARKive is already doing this so not the role of the NBN. Leave this to others.
To promote:	The value of existing biodiversity data and information	Delete 'existing'. Promote also the value of biological recording.
	The organisations involved in collecting and curating biodiversity data	Strong agreement with promotion of the data providers. Ensure LRCs are promoted also.

Table 1: Draft NBN Gateway objectives and comments made during the workshop



It has to be more than just a membership. Members need to be acknowledged for their contribution to the UK biodiversity Network.

- New NBN Gateway might be the death of scheme and society websites that do a similar job.

Users

- Issue of lack of filters to pick between verified and un-verified data.

- Issue of ensuring all data makes it to the NBN Gateway in some form or other.

- Need to raise awareness of existing NBN Gateway functionality (especially amongst data set administrators).
- Issue of speed of data access requests being granted due to data provider staff being on holiday or not enough of them.

NBN Gateway name

Workshop participants discussed the name of the NBN Gateway and whether it should be changed. It was suggested that the value of the current name is that it reinforces the message of the existence of the NBN and that is a

good thing. A new NBN Gateway will further emphasise the role of the NBN as a national network for biodiversity.

Questions were asked about what the term ‘Gateway’ means? Perhaps ‘Portal’ is a better term. But it was suggested that if it works then we should stick with it. A question was also asked about who owns the NBN Gateway? That may influence what it is eventually called if the name is to be changed. Perhaps the home page should be a public interface that is non-organisational.

Names suggested included:

- Atlas of Living Britain
- Nature Portal for the UK
- UK Biodiversity Information Portal
- UK Wildlife Gateway
- UK Wildlife Portal

NBN Gateway design mock-ups Workshop participants discussed the new design mock-ups that the NBN Trust has developed (see Figures 1 and 2). It was suggested that home page and taxon pages were too busy and could be simplified further. Headers on the taxon page could be simplified into tabs. There was a feeling the taxon page was too cluttered. It

was noted that it is difficult to create pages for such a diverse audience. Therefore there is a need to prioritise audiences – maybe for naturalists to be the highest priority to make sure it meets their needs?

There was also a need identified to ensure any new system works on multiple platforms from desktop to tablet to phone. People want ‘one-click’ to get to the information they are looking for. Perhaps the NBN needs a simple smartphone app to show people what wildlife is where they are. It was suggested that videos to watch distributions change over time would be useful. Photographs were thought to add a lot of value to the NBN pages.

The signposts, both to data providers and to the extra information held by other organisations, were thought to be very good. It was suggested that the NBN family links (at the top of the pages) could be more prominent. Images could be webserviced in from all other sources such as iRecord, iSpot and Arkive if possible. There is also a need to add a link under the map to say “View more visualisations” of data and provide links to existing ID guides and keys.



Session 2: Improving the NBN Gateway: Who are the key users of NBN Gateway infrastructure and what can we do to improve it for them?

The second part of the workshop involved examining the needs of each potential NBN Gateway user and what we need to do to meet those needs. Finally, workshop participants were asked to identify the top three priority improvements that should be done immediately.

Non-Governmental Organisations

What are their needs?

- Access requests need to be resolved. Multiple datasets mean multiple requests.
- NGOs want:
 - o To obtain data on a species
 - o To be able to pull map layers across
 - o An “upload all data now” button
 - o NBN to control access requests perhaps

How can this be done?

Provide users with access to all data Automatically push data (or fetch) to/from NBN Gateway

Researchers

What are their needs?

- Researchers need to be able to discover or know that datasets exist
- They then need to know if the data are reliable or appropriate to their research
- Researchers would also like to have access to non-biodiversity background layers such as soils, climate, altitude, countryside survey etc.
- Researchers need to know if they have complete access to available data
- Tools for planning surveys (e.g., for atlas development) or sampling

- stations to avoid recorder bias would be useful
- Citations and data provider acknowledgements would be useful e.g., DOIs (Digital Object Identifiers) including authors, date and metadata
- Researchers suggest promoting and justifying the NBN Gateway through auditing of data usage and publicity
- Facilitating linkages and sharing research outputs would be valuable.
- Shapefile downloads
- Attributes should be standardised – lifestage, behaviour, type of record and able to view on screen and use as filters
- Absence records should be included
- Metadata – easier user interface and more guidance and upholding of standards. Ability to filter on certain fields – less free text
- Permission to use (or filter if no permission)
- Annotate citation mechanism
- Multi-select on access requests and a filter response to access requests
- 10m and 1m resolution and sub 1m resolution would be valuable (with associated metadata field for GPS accuracy)

Educators

What are their needs?

- Very wide range including formal education, adult, NGO, LRC, Field Studies Council, universities and museums
- Interpreted information on the NBN Gateway / website would be useful
- Grid maps are a common need of the above groups
- Need to tell a story of why people record, how they record and why this is important
- What needs to be done?
 - Put the Darwin guide to recording online

- Lobby government to integrate biodiversity and recording and nature study into the curriculum
- Continue to provide online maps
- Priority actions are:
 - 1. Increase awareness of biological recording
 - 2. Raise profile through TV appearances (Spring Watch) and securing a celebrity patron

Local Record Centres

What are their needs?

- Access to data on the NBN Gateway for use in products and services
- Option to use a non-NBN Gateway data search (generating income for LRCs)
- Direct upload and editorial control of records on the NBN Gateway
- Advocate and champion and promote LRCs
- Focus on place and sites
- Simpler upload – automatically harvesting from databases following certain standards
- Develop and invest in Recorder 6
- Trusted data providers within NBN give access to others that meet data security standards
- Reduce duplication of data going to NBN Gateway
- Need location names held more consistently

What needs to be done?

- Remove barriers to use of data (e.g., commercial use and access restrictions imposed by data providers)
- Streamline process for data upload (allowing direct upload), provide an online metadata form
- Enable data editing online (to quickly change and correct errors without having to upload the whole dataset again)
- Develop planning / consultant report in consultation with LRCs

Priority actions are:

1. Resolve access to data so LRCs and others can use
2. Install a new data upload system
3. Simpler updating system for data
4. Remove barriers to data access – licensing and webservice.
5. Signpost to LRCs as a place to obtain data services and information.

National Scheme and Societies

What are their needs?

- Recorders largely want their observations on the NBN Gateway
- Improved interactive map that allows multi-species
- Publicise recording schemes on home page of the NBN Gateway
- Ability to save their settings and filters into their own profile
- Better filtering systems for data
- Ability to comment on a record and filter by comment
- For species:
 - o Show the determination and verification status of a record
 - o Show ID quality
 - o Show expertise of recorder
 - o Show new records by date of addition
- For dataset mapping, provide a key to the density levels, provide a species list per dot, provide a right-click to deliver details (or hover over popup)

- Provide a system to determine species within a set radius
- Issue of losing records on drill down into the NBN Gateway maps
- Need to be able to record and show negative records
- Need better usage reporting for data providers
- Provide a count of empty squares
- Improve uploading and downloading of data especially for very large data sets.

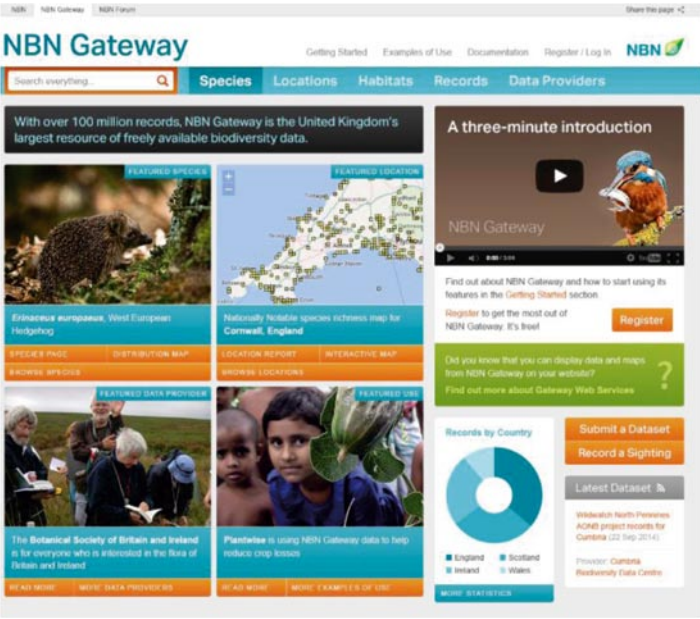


Figure 1: NBN Gateway Home page mock-up

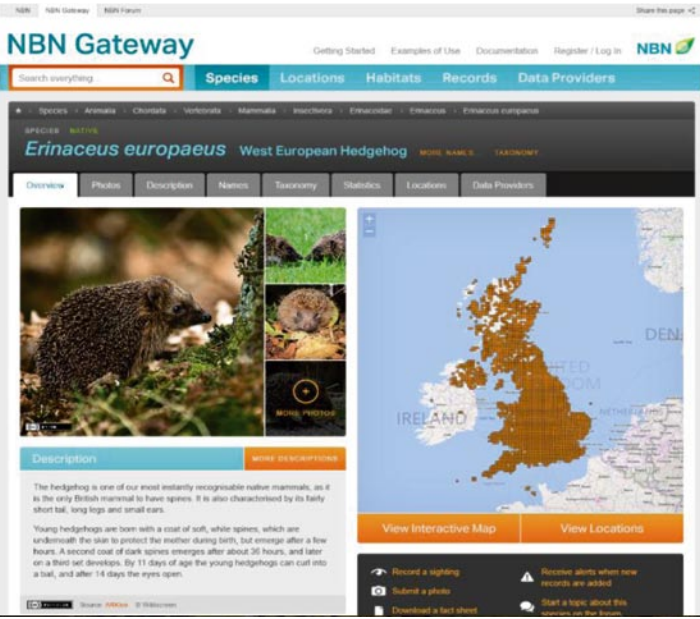


Figure 2: NBN Gateway Taxon page mock-up

- Data mobilisation issues
- Need confidence that data is collected – goes to one place and then to the NBN Gateway
- Need to provide images of vouchers were they exist. Need to state if it is a record from a specimen or not
- Reinstate view only access

Priority actions are:

1. Data quality – flags, filters and comments
2. Interactive Mapping Tool – improve reliability/stability, increase functionality with more filters such as species status, allow users to save their settings and filters into their own profile
3. Separate viewing and downloading so that users will be able to see records that have been hidden (to prevent download)
4. Signpost to schemes and societies from NBN Gateway.
5. Increase accessibility to data.

Planning authorities

What are their needs?

- Up-to-date, comprehensive biodiversity data (NSS and LRCs and Wildlife Trusts and NGOs are vital for this)
- Need to provide a search and report on radius
- User defined polygon search tool would be valuable
- Provide the status of a species (nationally and regionally)
- Ability to download in GIS formats
- Direct users to expert interpretation and to relevant PPG paragraphs.

Technologists

What are their needs?

- Access to data.
- They need a catalyst to bring them together to assist the NBN, e.g., a hackathon. Something meaningful to give them a desire to contribute

- The need to have something fun to do
- Priority actions are:
1. Facilitate them to come together to assist the NBN
 2. Engage with technologists and coordinate their activities so they contribute something useful
 3. Create an NBN wiki

NGOs

What are their needs?

- Web services to add distribution maps to a site and to submit a sighting
- More attractive data pages on the non-charismatic species to educate and signpost to NBN Gateway
- Need to signpost from the NBN Gateway to NGO websites where they hold good content
- Need access to marketing email lists as a resource – need to promote NGO activities via E-News
- Need to make more use of download alert emails

Recorders

What are their needs?

- Need the name of the recorder on the record – visible and filterable
- Quick data flow – and one clear easy route to get data on the NBN Gateway
- Full access to my own records
- Save searches and filter options and access request filters
- Social media links – better thumbnail on Facebook
- Local patch links
- NBN web services into online recording sites and apps as a quick check for species identification
- More targeted communication and awareness raising for recorders – “this is your NBN Gateway, this is how you can use it”
- Hard for new recorders to become trusted – need to find pathway for this



Consultants

What are their needs?

- Fast access to data
- Relevant, up-to-date and accurate data
- Need information about species and sites that have legal status (e.g., protected species)
- They need cheap and free access and they also need packaged information products
- They need information that is easy to interpret
- Site specific information and systems to allow interrogation for sites
- Need easy ways to contribute their own data

Priority actions are:

1. Identify consultant specific products that could be developed and delivered via the NBN Gateway
2. Carry out market research to find out their specific product needs
3. Need to signpost good quality data and services (for example a 5 star system for determining quality and accuracy of data)
4. Standard reports and standard payment systems throughout UK
5. Establish easy payment systems
6. Need good data capture systems and tools
7. Need to keep up-to-date with changing legislation

Appendix 1:

NBN Gateway User Review Questionnaire

NBN Gateway User Review

The NBN Trust is continually looking at how it can improve the NBN Gateway in terms of data upload, data access, data visualisation and data use. The purpose of this survey is to help us better understand your current experiences of the NBN Gateway and to identify where we can make improvements. Included in this is the UK Species Inventory which is a core part of the UK's biological recording infrastructure.

Information from this survey will be used to inform both future changes to the NBN Gateway and discussions at the forthcoming NBN Gateway User Needs Analysis workshops to be held in London on 20 November 2014. The results of the survey will be summarised and circulated to all participants and members of the NBN.

This survey is split into nine sections, each taking no more than five minutes to complete. We recommend reading through the questions first so you are clear what we are asking and so that you can ensure you have enough time to complete the survey. You can also download a hard copy of the survey here <http://bit.ly/1q130vC>.

There is space at the end of each section for you to add any additional comments. If you would like to discuss anything further please do not hesitate to contact Rachel Stroud (r.stroud@nbn.org.uk).

Please send all completed surveys by the end of Friday 14th November.

All personal information will be treated in accordance to the Data Protection Act 1998. We will only use your details for providing you with further opportunities to influence the NBN Gateway development. We will not pass your information on to other parties.

Many thanks in advance for your time completing this survey, we appreciate your comments and look forward to working with you into the future.

Who are you?

These questions are about you, where you are from and who you represent.

The contact details are not compulsory but will be useful to us to ensure you are informed and involved in any NBN Gateway development over the coming months. We will only use your details to keep you informed in this respect and will not pass your information on to other parties.

1. What is your surname?

.....

2. What is your first name?

.....

3. Where do you live?

Mark only one oval.

- ☐ England
☐ Scotland
☐ Wales
☐ Northern Ireland
☐ Not in the UK - International

4. What is your contact address?

.....

5. What is your phone number?

.....

6. What is your email?

.....

7. Is your submission personal or on behalf of an organisation(s)

Mark only one oval.

- ☐ Personal
☐ Organisation
☐ Both

8. If your submissions is on behalf of an organisation, what is the name of your organisation(s)

.....

9. Are you a member of the NBN

Mark only one oval.

- ☐ Yes
☐ No
☐ Not sure

10. Additional Comments

If you have any additional comments please the space below

.....
.....
.....
.....
.....

Providing your data to the NBN Gateway

This section is about your experience loading data to the NBN Gateway. If you do not send data to the NBN Gateway then you can skip this section.

11. Why do you provide data to the NBN Gateway?

Tick all that apply.

- ☐ To enable more efficient data sharing between our partner organisations
- ☐ We are required to do it by the people that fund us
- ☐ We want to be able to see our data in the context of everyone elses
- ☐ To provide data for the common good and to advance our understanding of biodiversity
- ☐ To signpost our organisation and show people what data we hold
- ☐ We want our data to be available for education
- ☐ We want to inspire people to care about the environment around them
- ☐ To enable our data to be made available globally through GBIF
- ☐ We want our data to be available for scientific research
- ☐ It is what we have always done
- ☐ Other:

12. What is the most important reason for providing data to the NBN Gateway

Mark only one oval.

- ☐ To enable more efficient data sharing between our partner organisations
- ☐ We are required to do it by the people that fund us
- ☐ We want to be able to see our data in the context of everyone elses
- ☐ To provide data for the common good and to advance our understanding of biodiversity
- ☐ To signpost our organisation and show people what data we hold
- ☐ We want our data to be available for education
- ☐ We want to inspire people to care about the environment around them
- ☐ To enable our data to be made available globally through GBIF
- ☐ We want our data to be available for scientific research
- ☐ It is what we have always done
- ☐ None of the above

13. If you answered 'None of the Above' please tell us the most important reason for providing data to the NBN Gateway

.....

14. As a general rule how often do you submit updates to the NBN Gateway?

Mark only one oval.

- ☐ Monthly
- ☐ Quarterly
- ☐ Annually
- ☐ Biannually
- ☐ Less frequently than once every two years
- ☐ On an 'as and when' basis
- ☐ Updates are sent automatically via the Indicia warehouse

15. How long does it take for a record captured by you, your staff or volunteers in your organisation to arrive on the NBN Gateway?

Mark only one oval.

- ☐ 1 week
- ☐ 1 month
- ☐ More than 1 month but less than 3 months
- ☐ More than 3 months but less than 6 months
- ☐ More than 6 months
- ☐ It never arrives
- ☐ I don't know

16. Do you feel that this "time to market" is acceptable? (i.e. the time it takes for the data to arrive on the NBN Gateway)

Mark only one oval.

- ☐ Yes
- ☐ No

17. Please explain why

.....
.....
.....
.....
.....

18. Additional Comments

If you have any additional comments please the space below

.....
.....
.....
.....
.....

Your user experience

We would like to better understand how you use the NBN Gateway, for what purposes and the ease of access to the information.

19. Why do you use the NBN Gateway?

Mark only one oval.

- ☐ Work
- ☐ Personal interest
- ☐ Both
- ☐ Other:

20. Please expand on your use of the NBN Gateway

.....

.....

.....

.....

21. How long have you been using the NBN Gateway?

Mark only one oval.

- ☐ This is my first time visiting the NBN Gateway
- ☐ Less than a year
- ☐ Over a year
- ☐ More than five years
- ☐ Since the start of the NBN

22. How often do you visit the NBN Gateway?

Mark only one oval.

- ☐ This is the first time
- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ On a 'need to' basis

23. What type of device do you generally use to access the NBN Gateway?

Mark only one oval.

- ☐ PC/Laptop
- ☐ Tablet
- ☐ Phone

24. Additional Comments

If you have any additional comments please use the space below

.....

.....

.....

.....

Accessing Data

This section is about your experiences accessing data through the NBN Gateway

25. Do you know how to search the NBN Gateway?

Mark only one oval.

- ☐ Yes
- ☐ No

26. Could the search functionality be improved?

Mark only one oval.

- ☐ Yes
- ☐ No

27. If the search functionality could be improved please explain how, and what changes you would like to see

.....

.....

.....

.....

28. Have you used the access controls to access restricted data?

Mark only one oval.

- ☐ Yes
- ☐ No

29. If you have not used the access controls, why is this?

Tick all that apply.

- ☐ I didn't know they exist
- ☐ I don't know how to use them
- ☐ I have not been granted access before
- ☐ The time taken for data provider to respond is often too long
- ☐ Other:

30. How could the access controls be improved?

31. Additional Comments

If you have any additional comments please use the space below

NBN Gateway Functionalities

This section is about the functionalities of the NBN Gateway. We would like to know if they currently meet your needs, and how the functionality could be improved.

Which functionalities of the NBN Gateway are most useful to you?

Please rank on a scale of 1 to 10 (where 1 is useless and 10 is extremely useful)

32. Download data about a species distribution

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

33. Download a specific dataset

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

34. Download data for a given area

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

35. Download data for a designation

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

36. Learn about a local area

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

37. Learn about a species

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

38. Contact an organisation

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

39. Documentation from the NBN Trust

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

40. Forum

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Useful

41. Other

Please specify and expand here

42. Additional Comments

If you have any additional comments please the space below

Which functionalities would you most like to see improved on the Gateway?

Please rank on a scale of 1 to 10 (where 1 is 'does not matter' and 10 is 'very valuable')

43. Download data about a species distribution

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

44. Download a specific dataset

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

45. Download data for a given area

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

46. Download data for a designation

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

47. Learn about a local area

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

48. Learn about a species

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

49. Contact an organisation

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

50. Documentation from the NBN Trust

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

51. Interactive mapping tool

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

52. Forum

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Does not matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very valuable

53. Other

Please specify and expand here

.....

.....

.....

.....

54. Additional Comments

If you have any additional comments please use the space below

.....

.....

.....

.....

55. Are there any reasons preventing you using the NBN Gateway information?

Tick all that apply.

- ☐ The information I need is unavailable
- ☐ Uncertainty about whether I am allowed to use it
- ☐ Information is restricted on the NBN Gateway and I cannot gain enhanced access
- ☐ I cannot find the information because I don't know how to navigate around the NBN Gateway
- ☐ The type of device/operating system I use is not supported
- ☐ I am uncertain of the quality of the information
- ☐ Other:

56. On your most recent visit to the NBN Gateway were you able to complete your task?

Mark only one oval.

- ☐ Yes
- ☐ No

57. If you were unable to complete your task, please tell us why not?

.....

.....

.....

.....

58. After your last experience would you recommend the NBN Gateway to others?

Mark only one oval.

- ☐ Yes
- ☐ No

59. Please expand on your answer if you wish to give more detail.

.....

.....

.....

.....

60. Additional Comments

If you have any additional comments please use the space below

.....

.....

.....

.....

Other sources of biodiversity data

This section is about the additional sources and routes you use to gain access to biodiversity data and information

61. Do you use other information data portals to access UK biodiversity data?

Mark only one oval.

- ☐ Yes
- ☐ No

62. If you answered Yes, which portals do you use? Please list and include a link where possible.

.....

63. What other (additional) routes do you use to access UK biodiversity data? How often do you use these additional routes - please expand .
 Mark only one oval per row.

	For most datasets I need	Occasionally	Rarely	Never
Local Record Centre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MapMate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recording Scheme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
County Recorders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservation NGOs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

64. Other routes

.....

65. Why do you use these additional routes to access UK biodiversity data?

.....

66. Additional Comments

If you have any additional comments please use the space below

.....

Future development of the NBN Gateway

67. Does the NBN Gateway currently meet all your biodiversity data needs by providing access to species and habitat distribution data, designations and datasets?
 Mark only one oval.

- ☐ Yes
☐ No

68. If you answered No above, please give details as to why

.....

69. Are there additional features that would add value to your experience of the NBN Gateway, for example:

We would welcome web links to other organisations or sites which have functionality that you would like on the NBN Gateway.

Tick all that apply.

- ☐ Photos of species
☐ Habitat/ecosystem layers
☐ Education resources for schools etc
☐ Summary data about what is available through the NBN Gateway
☐ Improved visualisation system for mapping data
☐ Phenology graphs showing expected emergence/flowering/arrival times for species in your area
☐ Additional information about species/ecosystems/habitats
☐ Project ideas surrounding datasets for Undergraduate/MSc students
☐ Identification keys for species and ecosystems
☐ Easier links to organisations providing data and Local Record Centres etc
☐ Improved design of user interface
☐ Ability to compare species distribution
☐ Other:

70. Is the current display and interpretation of data on the NBN Gateway maps adequate for your purposes?

This covers species distribution maps, species hotspot maps & the interactive mapping tool

Mark only one oval.

- ☐ Yes
☐ No

71. If No, then please explain why.

Have you seen other systems which display data in alternative ways to the NBN Gateway (please give examples and weblinks).

.....
.....
.....
.....
.....

72. Which mapping method on the NBN Gateway is the most useful to you?

Mark only one oval.

- ☐ Interactive mapping tool
☐ Grid Map

73. Please explain why?

.....
.....
.....
.....
.....

74. Additional Comments

If you have any additional comments please the space below

.....
.....
.....
.....
.....

UK Species Inventory

The Natural History Museum maintains the taxonomy that underpins the NBN Gateway, Recorder8 & iRecord and is also used by many organisations around the UK.

75. Were you aware that the UK Species Inventory was maintained by the Natural History Museum?

Mark only one oval.

- ☐ Yes
☐ No

76. Currently you can submit suggestions for new names/taxa and amendments via email (c.raper@nhm.ac.uk) and via the NBN Forum. Do you find it easy enough to submit changes and additions to the UK Species Inventory?

Mark only one oval.

- ☐ Yes
☐ No

77. If No, then please give details

.....
.....
.....
.....
.....

78. If you are a checklist owner would you like to be able to maintain your checklist online or at least suggest changes using a simple web application?

Mark only one oval.

- ☐ Yes
☐ No

79. If No, then could you give your reasons:

Tick all that apply.

- ☐ You feel that you do not have enough technical knowledge?
☐ You do not have the time to make suggestions?
☐ You prefer the existing system of updating complete versions as and when they become available
☐ Other:

80. Additional Comments

If you have any additional comments please the space below

.....
.....
.....
.....
.....

Final Questions

81. Do you have anything else you would like to tell us about your experience using the NBN Gateway?



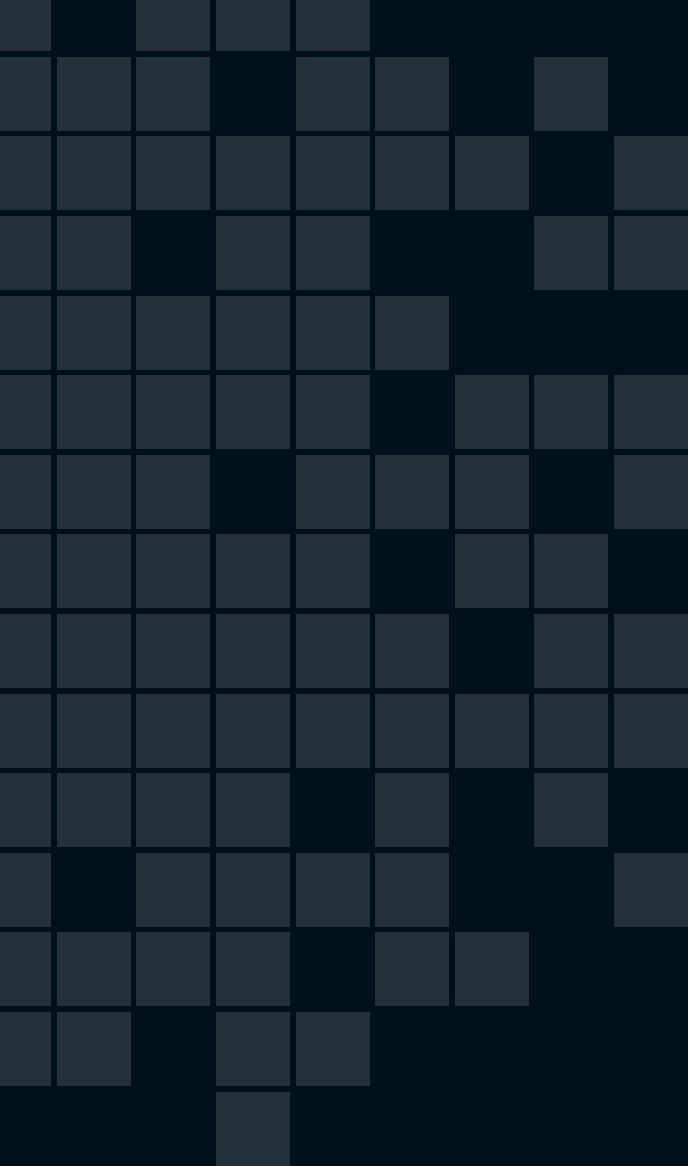
Appendix 2:

List of respondents to the NBN Gateway User Review Questionnaire

The following organisations submitted responses to the NBN Gateway User Review Questionnaire:

Aberdeenshire Council	Department of Environment Food and Agriculture	London Natural History Society	Scottish Natural Heritage
ALERC	Devon Biodiversity Records Centre	Manx Biological Recording Partnership	Seasearch
Aspect Ecology Ltd	Doncaster MBC Local Records Centre	Merseyside BioBank	SEPA
Bangor University	East Riding Council	Millipede Recording Scheme	Shropshire Mammal Group
Bat Conservation Trust	EES	NAFC Marine Centre	Sue Bell Ecology
Bedford Borough Council	EM Highways Services Ltd	National Trust	Suffolk Biological Records Centre
Bedfordshire and Luton Biodiversity Recording and Monitoring Centre	Environ	National Trust for Scotland	Sussex Biodiversity Record Centre
Bristol Museums, Galleries & Archives	Ephemeroptera/Plecoptera Recording Schemes	Natural England	Tachinid Recording Scheme
Bristol Regional Environmental Records Centre (BRERC)	Essex Wildlife Trust Biological Records Centre	Natural Resources Wales	Thames Valley Environmental Records Centre
British Dragonfly Society	Field Studies Council	NESBReC	The Mammal Society
British Lichen Society	Gelechiid Recording Scheme	Norfolk Biodiversity Information Service	The Wildlife Information Centre (TWIC)
BTO	Greater Manchester Ecology Unit	Norfolk County Council	Tweed Ecology
Butterfly Conservation	Greenspace Information for Greater London	Northumberland Wildlife Trust	UK Rare Breeding Birds Panel
Caddis Recording Scheme	Highland Biological Recording Group	OUMNH	University of Essex
Caledonian Conservation Ltd	IOM Govt	Outer Hebrides Biological recording	University of Hertfordshire
Central Scotland Green Network Trust (and formerly Central Scotland Forest Trust)	iSpot	Oxford University Museum of Natural History	Vegetation Survey & Assessment Ltd
CJS	IW Local Records Centre	People's Trust for Endangered Species	Water Management Consortium
Coastal and Marine Ecosystems Unit (CMEU) of Scottish Natural Heritage (SNH).	Kent & Medway Biological Records Centre	Powys & BBNP Environmental Record Centre Ltd	WDC Shorewatch Programme
Conchological Society	Knotweed Control and About Wild Wales	Pseudoscorpion Recording Scheme	Woodland Trust
Countryside Conservation Centre	Leicestershire and Rutland Environmental Records Centre	Royal Horticultural Society	Yorkshire Naturalist Union
Cumbria Biodiversity Data Centre; Tullie House Museum	Lichfield District Council	RSPB	
		Scottish Hydro Electric Transmission plc	





NBN Trust

NBN Trust - Registered in England and Wales - Company no.3963387
Registered charity no. 1082163.