NBN Working Group 3: Biological Recording Online
Scoping report & Terms of Reference

Scoping report

Why set up the group?

A wide range of people are involved in the capture of biological records through on-line recording platforms. Some systems set out to engage the general public and others focus on more skilled recorders or those with a specialist taxonomic interest. The NBN Biological Recording Database outlines the extent of the current online recording systems. In addition to the extensive diversity of systems capturing data, there exists a range of different systems used to verify records.

There are numerous UK based organizations collecting records online and some internationally collecting records for the UK. Only some of these systems are used to verify as well as capture records. Indicia is used widely used and other organizations within the Network also use Living record or RODIS, or create in-house solutions, such as the BTO surveys. Globally, platforms such as iNaturalist are used widely and host very active communities. The proportion of biological records captured using online systems is increasing year on year and it is expected that the future of all biological recording is likely to involve online recording platforms or 'single-use' apps.

This diversity of systems offers users and NBN data partners wide choice and are undoubtedly a great asset to the NBN, however a need exists to coordinate these activities and provide guidance and standards for developers to ensure efficiency of resources and capture of quality data. Additionally, the Recorder 6 Steering Group are investigating the option of investing funds in the development of online recording tools, with a view to ceasing support for Recorder 6.

Online recording has been identified by Network members as a priority action to facilitate delivery of the NBN Strategy 2015-2020 and to deliver this a Working Group to 'support, maintain and improve online recording in the UK' will be established. This document sets out the scope of the Biological Recording Online Working Group and its Terms of Reference.

What is out of scope?

The concept of biological recording is well established but online biological recording covers a range of different elements.

Online recording platforms which are out of scope of this Working Group include:

- Crowdsourcing data capture platforms (i.e. Zooniverse, Herbaria@home)
- Social media platforms enabling people to make, share and identify wildlife sightings (i.e. Twitter, Facebook)

- Platforms assisting primarily with the taxonomic ID skills (e.g., iSpot)

Other Working Groups focusing on 'Mobilising Historic Data' and 'Captivating and Engaging People' will address how these online recording platforms can be maximized and streamlined. It may arise that these become within the scope of this group over time.

What is in scope?

The immediate priority for this group is to focus on issues pertaining to systems explicitly capturing, verifying, managing and sharing biological records on-line. In this way, the working definition of online recording, which will be finalised by the Working Group, is:

"Online recording is the process of entering a species record into an online system that has been specifically set up to enable users to contribute data to a survey or on-going effort to gather species records."

The overall objective of the Working Group is to ensure good quality data are available for sharing regionally and nationally via the NBN data infrastructure as quickly, and as accurately, as possible.

This Working Group will focus largely on setting standards for online recording. The group will not be prescriptive about which system Network partners should be using.

This Working Group will address the needs of the various users defined in the NBN Data Flow Pathway; those that record and collect, quality assure, curate, aggregate, analyse or use data captured via online recording systems. In this way, the group will facilitate the NBN Data Flow Pathway and thereby contribute to delivering the overall NBN strategy 2015-20.

Terms of Reference

1. Purpose

The principle focus of the Working Group will be to deliver the following from the NBN Action Plan:

- 1A.7 Prepare an online recording strategy for the UK to ensure system consistency and standardization

Related actions are:

- 1A.9 Support sharing of biological data by ecological consultants
- 4A.2 Secure investment in UK infrastructure for biological data management
- 4B.2 Increase the interoperability of NBN Trust member data systems, tools and infrastructure

To develop an actionable, measurable and user focused Online Recording Strategy for the UK a User Needs Analysis will be conducted. This will ensure a complete understanding of the issues pertaining to online recording along the Data Flow Pathway (data collectors, quality assurors, curators, aggregators, analysers and downstream users). It should include:

- Refine above definition of 'online recording'
- Review the existing NBN online recording standards
- Define the key elements in a successful online recording system
- Analyse current online surveys to fully understand the issues affecting users and data flow. For instance, the group will need to know:
    - How many records are being collected online by each survey?
    - How many people are contributing to surveys?
    - How many records from online surveys are verified before being available on the NBN Gateway (in collaboration with Working group 1: Quality control and verification)?
    - How many people are actively verifying data on-line (in collaboration with Working group 1: Quality control and verification)?
    - How many records are (openly) available on the NBN Gateway (in collaboration with Working Group 4: Improving biological data flows)?
- Classify survey audiences so that targets are appropriate. For instance, are the surveys:
    - For the general public or skilled biological recorders?
    - For existing recorders or new audiences?
    - Collecting structured, time limited or on-going data?

Alongside the User Needs Analysis the Working Group will collaborate with other Working Groups to ensure a joined up approach. Particularly relevant are those listed in the 'Meetings and other working methods' section, below, whose remit overlaps this group.

The Working Group will develop an Outcomes Framework which will be embedded in the Online Recording Strategy to ensure that it is focused on delivering user needs.

2. Measures of success

The table below provides a basic structure of an Outcomes Framework, together with examples of desirable outcomes for some of the user groups. The reality will no doubt be more complex but this creates a framework to ensure the Working Group remains focused on user outcomes.

User group (NBN Data Flow Pathway)	Outcome (desired)	Output (of working group)	Performance indicator (how progress will be monitored and measured)
Form users and recorders	Users understand which systems are available and appropriate for a given purpose, which organisations will receive the data and can retrieve their own data at any time	System of kite-marking to demonstrate survey meets NBN standards of usability, data quality and sharing	Number of kite marked surveys, fewer mis-understandings about where to supply data (which can be measured using a range of established user research techniques)
Data curators and aggregators	Agreed process of data sharing and clear understanding of data flows	Guidance documents for online recording data flows, data exchange agreements in place	Number of records of known verification status on NBN gateway
Data users and analysers	NBN Gateway users able to access and use data with 24 hours of it being recorded	System of automated checking, verification flags and data exchange processes that allow data to be submitted rapidly to NBN Gateway.	Users able to understand verification status of record on NBN Gateway and decide whether or not include in analysis. % records from on-line surveys available on NBN Gateway within 24 hours.

3. Known issues to be addressed

Some of the key issues for each user group are listed below. A full list of issues raised by NBN Members can be found in Appendix 1.

Form users and recorders

- Confusion over use terminology (eg Latin names in general public surveys)
- Online recording forms sometimes not easy to use, are not developed with user testing and do not follow good web-form [design principles](#)
- Uncertainty about which form to input data to and who will receive data
- Concerns around security and sharing of personal information
- Uncertainty about required skill level and therefore ability to participate
- Concerns surrounding data flow and onwards availability of data
- Understanding around verification-related conversations
- Confusion around definition of locations
- Dealing with changes made to underlying taxonomic dictionaries

Curators and aggregators

- Perception that need to use particular system or content management system to create online recording form to NBN standards
- Not all online recording forms use the same taxonomic dictionary
- Concerns about amount of data that needs to be verified, that there isn't currently enough capacity and that this causes a bottleneck in data-flow (in collaboration with Working group 1: Quality control and verification)?
- Data flows are too complicated and it's not clear how to avoid duplication and know where the top copy of a record is
- Online tools do not currently allow data managers enough functionality to manage data effectively and they therefore need to download and re-upload to different systems. This slows data flow to Gateway or 'time-to-market'
- Need assurances on continuity and reliability of service from CEH and NBN (up-time of Gateway and stable web-services)

Data users and analysers

- Data can be months or even years old before it is available on NBN Gateway (which means statutory planning consultations, Environmental Impact Assessments and many other analyses are not based on up-to-date information)
- It is not always clear whether data on the NBN Gateway has been verified (address in collaboration with Working group 1: Quality control and verification)?

4. Membership

The group will consist of up to 12 members, representing the range of organisations in the NBN. Appendix 2 lists those organisations that expressed an interest in participating in the actions covered by this Working Group during the recent consultation on the NBN Action Plan. It is expected that those who were 'definitely interested' will form the core group and will decide if it is necessary to broaden membership.

Unfortunately, NBNT are not able to cover travel and other costs and hope that participants

can consider this their contribution to the Network.

It is expected that members will agree to at least a 12 month commitment. This will include 2 meetings and around 2 days' work in the intervening period. Organisations will, however, only be asked to commit to what they know they can achieve. If actions arise that group members are not able to deliver themselves, the Working Group and NBN Trust will seek additional resource.

An NBN board member will chair the group and members leading on particular work sections will act as executive chairs. NBN Secretariat will provide secretarial support for meetings and the group.

In terms of accountability, the Working Group will generate reports for the NBN Board and, if relevant, for the leadership teams of the participating organisations.

5. Meetings and other working methods

It is anticipated that there will be 2 meetings per year, which will be held at a location convenient for the group. The room will have tele-conference facilities to enable members who are unable to travel to participate. Members will not be asked to attend meetings if the topics are not relevant to them. Guests may be invited to share expert knowledge.

Meeting agendas will be made available to all NBN Members in advance of meetings so that views of members can be represented at the meetings. Likewise, meeting minutes will be made openly available via the NBN website so NBN Members are kept abreast of progress.

The remit of the group overlaps with some other working groups, particularly:

- Working Group 1. Quality control and verification
- Working Group 4. Improving biological data flows
- Working Group 6. Captivating and engaging people
- Working Group 8. Strategy for the UK Species Inventory

Joint meetings with these working groups may occasionally be necessary. Representatives of the Biological Recording Online Working Group may also be required to attend other Working Group meetings to ensure a joined-up approach.

The Working Group will operate in a spirit of open communication to encourage collaboration and ensure transparency. Materials will be shared via Google documents and Dropbox and only where absolutely necessary will the Working Group keep information confidential.

Appendix 1: Known issues with on-line recording

The list below is some of the questions raised by Network members relating to online recording.

1. Who is currently using online recording as part of their data collection? And who is not and why not?
2. What systems are currently being used, are they working well, secure and effective (user needs?)
3. Do we understand barriers and successes regarding uptake? Which barriers to addressing problems are financial versus lack of understanding?
4. How do we integrate verification to online recording platforms?
5. Are there existing standards being used and followed (e.g., use of UKSI names and taxon version keys), data fields etc. (refer to Working Group on UKSI). How extensively are these standards used?
6. What are the major gaps in online recording (geographic or taxonomic), are these in the system or in uptake of existing systems? Using phone location to communicate gaps back to users in real time.
7. How can online recording be used to increase engagement and learning (e.g., through natural language generation and development of gamification to increase recording.)
8. Ongoing infrastructure support and evolution of online platforms (Core support? Shared services?)
9. What are the problems facing the current online platforms?
10. How do people know which system to use?
11. Where does data go?
12. Multiple entry of data to different systems (e.g., iSpot and then iRecord) – is this an issue?
13. Are there sufficient skills within the Network to develop and maintain online recording platforms?
14. Should we be addressing the needs of overseas organisations collecting data in the UK?
15. Does group need to address Globally Unique Identifiers?

Appendix 2: Proposed invite list

The table below indicates which organisations expressed an interest in being involved in the Biological Recording Online Working Group during the NBN Action Plan consultation.

Proposed core group in blue (those that replied 'yes, definitely' or 'yes, keen to lead') but please get in touch with the NBN Trust if you would like to be involved.

Organisation	Are you already doing this?	Would you like a role?	Are you keen to lead?	Do you want to be a partner?
CEH	Yes	Yes, definitely	Yes	
NBRC	Yes, but do more with more resources			Yes
SBIF	No	Yes, if we had more resources		Yes
GLNP	No	No, but we would like to be kept informed		Yes
FSC	No	No, but we would like to be kept informed		
JNCC,NRW,NE	Yes	Yes definitely		Yes
NFBR	No	Yes, if we had more resources		Yes
YNU	No	No, but we would like to be kept informed		
CadisRS	Yes, but do more with more resources	Yes, if we had more resources		
DWT	No	Yes, if we had more resources		Yes
HBIC	Yes			
CEDaR		Yes definitely		Yes
RECORD	No	No, but we would like to be kept informed		
iSpot/OU		Yes definitely		Yes
TWIC	No	Yes, if we had more resources		Yes
NatSCA		Yes definitely		Yes
NHM				Yes
PTES	No	No, but we would like to be kept informed		
SBRC	No	Yes definitely		Yes
LNU	No	Yes, if we had more resources		Yes
BSBI	Yes	Yes, if we had more resources		Yes

BWARS	Yes, but do more with more resources	Yes, if we had more resources		Yes
ALERC	No	Yes, if we had more resources		Yes
WWBIC	Yes	Yes, if we had more resources		Yes
LRERC	Yes	Yes definitely		Yes
SBIF	No	Yes, if we had more resources		Yes
ARC	Yes, but do more with more resources	Yes, if we had more resources		Yes
BTO	No	Yes, if we had more resources	Yes	
NBIS	No	No, but we would like to be kept informed		
GiGL	No	Yes, if we had more resources		Yes
PowysBIS	No	No, but we would like to be kept informed		
Seasearch	No	No, but we would like to be kept informed		
SussexWT	Yes	Yes definitely		Yes