24. Biodiversity data for decision making

Type: State indicator

Indicator Description

Good policy making and evaluation is based on evidence. Millions of biological observations (records) have been recorded in the UK over the past century by a wide variety of organisations and individuals.

This indicator provides an evaluation of the number of records added to the National Biodiversity Network (NBN) Atlas (which replaced the NBN Gateway in 2017) in a particular year and the resolution of those data, as a proxy for the evidence available to underpin conservation decision making.

Summary

The number of records within the National Biodiversity Network (NBN) Gateway has increased from 15 million at the beginning of 2004 to 83 million at the beginning of 2013, and to 131.3 million at the end of March 2017, at which time the Gateway closed and was replaced by the NBN Atlas. Since the start of the NBN Atlas in April 2017, there has been an increase of 102.0 million records to the end of May 2020. At the end of May 2020 there were 233.4 million records in the NBN Atlas (Figure 24.1).

The number of publicly accessible records which are at 1km^2 resolution or better increased from 10.5 million at the beginning of January 2010, to 35.2 million at the end of March 2017 in the NBN Gateway. The NBN Atlas which began in April 2017 has just under 131.5 million records at the end of May 2020 which are at 1km^2 resolution or better – an increase of 96.2 million since the start of the NBN Atlas (Figure 24.1).

Figure 24.1: Cumulative number of records in the National Biodiversity Network Atlas (formerly the National Biodiversity Network Gateway), 2004 to 2020
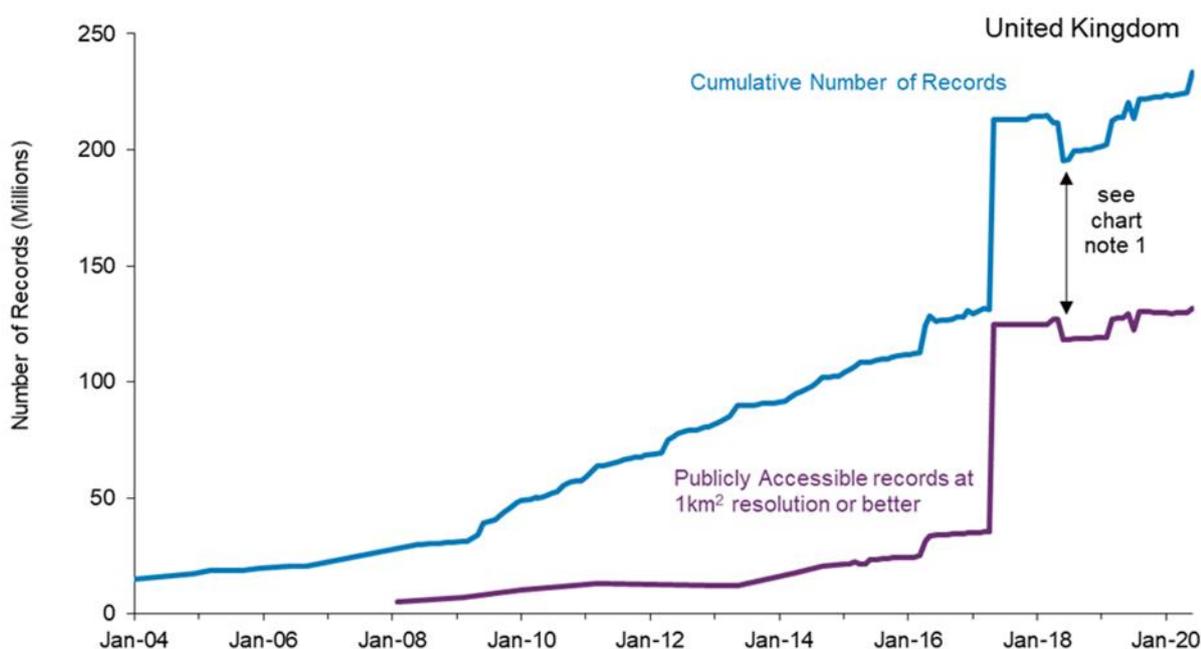
Notes:

1. The number of records dropped in May 2018 as a result of the system behind the NBN Atlas not saving the date (timestamp field) of when the records were first created. In addition to this there were also technical challenges between the transfer of data from the Gateway to the NBN Atlas, where the NBN have had to delete records first before they are updated. Both of these problems have now been resolved.
2. The step change observed in both time series in 2017 is due to the move from the NBN Gateway to the NBN Atlas and the addition of 10 large datasets by the British Trust for Ornithology (see Indicator description section for further details).
3. Data available to 31 May 2020.

Source: National Biodiversity Network.

Indicator assessment

Assessment of change in biodiversity data for decision making

Cumulative number of records in the National Biodiversity Network: Long term (2004 to 2020): Improving; Short term (2015 to 2020): Improving; Latest year (2020): Increased.

Number of publicly accessible records at 1km² resolution or better: Long term (2008 to 2020): Improving; Short term (2015 to 2020): Improving; Latest year (2020): Increased.

Note: Long and short-term assessments are based on a 3% rule of thumb. The base years for these assessments use a 3-year average. See Assessing Indicators.

Indicator description

Millions of biological observations (records) have been recorded in the UK over the past century by a wide variety of organisations and individuals. Most of these people are volunteers who organise themselves through many national and local societies and recording schemes. The UK and devolved governments (through their conservation and environmental bodies), local government and non-government wildlife-related organisations all collect and use biodiversity data. Information is held by many different organisations and the individuals who collect it, in a variety of formats, from computer databases to handwritten record cards. This means that although a huge amount of information exists, it is not always easy to access.

This indicator provides an evaluation of the number of records added to the NBN Atlas (which replaced the NBN Gateway in April 2017) in a particular year and the resolution of those data, as a proxy for the evidence available to underpin conservation decision making. Figure 24.1 shows the year that records were added to the NBN, not the date of the record.

The headline measures are evaluated by taking a 3-year average of the base year compared to the final data point. The assessment of change is evaluated against a 3% rule of thumb. If the difference is more than 3% then an increasing or decreasing assessment is made, depending on the direction of the change.

Figure 24.1 also shows the number of records which are publicly accessible at a resolution of 1km² or better. The number of publicly accessible high-resolution records increased from just under 5 million at the start of February 2008 to just under 131.5 million at the end of May 2020. During the period between the beginning of March and the end of April 2016 a large number of new and updated datasets were loaded on the NBN Gateway (around 210 datasets), including a new UK Butterfly Monitoring Scheme (UKBMS) dataset which added 5.7 million records. The update to the Butterfly Conservation's National Moth Recording Scheme dataset (total records around 20 million records on the NBN Gateway) may have accounted for the rise in April-May 2016, followed by a drop of 2.4 million records seen in June 2016, as the updated moth surveys were loaded before the old surveys were removed. A very large number of records were added to the NBN in April 2017 as a result of the changeover from the NBN Gateway to the NBN Atlas. Some of the large increase in the number of records is a result of the British Trust for Ornithology (BTO) adding 10 new datasets which accounted for nearly 156 million records in the Atlas. Approximately 55.8

million of the 95.5 million records that were on the Gateway were transferred to the Atlas, but other records were not transferred – due to a variety of reasons, including data providers not taking the opportunity to update the datasets and/or they had to gain permission from the data owners. Figure 24.1 also shows an increase in the number of records for May 2020, which is due in part to the BSBI adding a new dataset of 8 million records. Two million of these records were at 100m resolution or higher which accounts for the increase in 100m records in Figure 24.3 (see below).

Over time more high-resolution data are becoming available, for example, protected species records have recently been uploaded – which is important since more detailed records are of more value for conservation casework. In the case of protected species this can be used to evaluate whether species are present at a particular location and thereby to assess if a proposed development might impact on the protected species.

In addition to the resolution of the records, it is important to consider how recent the records are. Current records, less than 10 years old, are more useful for advice on planning matters than older records. Figure 24.2 shows the proportion of publicly accessible records at $1km^2$ resolution or better. The addition of a very large number of records at the point of change between the NBN Gateway and the NBN Atlas means that many older records were added at the same time as newer ones – this has decreased the proportion of records less than 5 years old in the May-20 column of Figure 24.2. For example, the 10 datasets from the BTO only went up to the end of 2015, so are not completely up-to-date, and therefore contribute more to the 'less than 10 years old' part of Figure 24.2.

Figure 24.2: Age of records at $1km^2$ resolution or better sourced from the National Biodiversity Network in May 2015 to May 2020
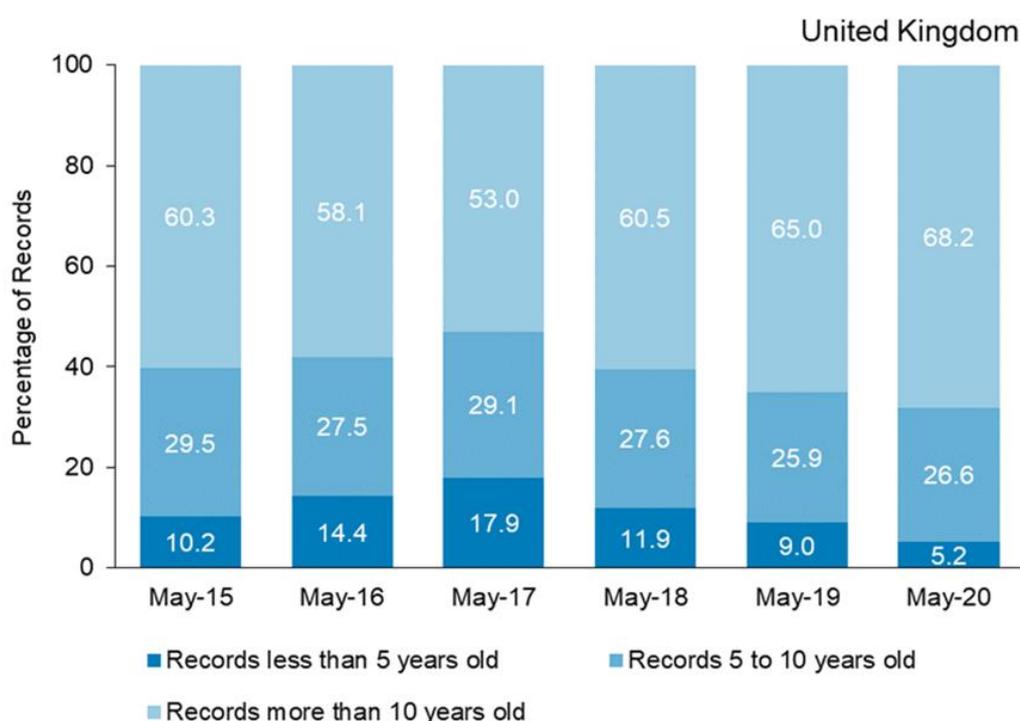
Note: The data represented are a snapshot of the data available as at 4 May 2015, 2 May 2016, 31 May 2017, 31 May 2018, 31 May 2019 and 31 May 2020 sourced from the NBN.

Source: National Biodiversity Network.

Relevance

Good policy making and evaluation is based on evidence. Evidence will also help to engage the public, natural resource managers and business, to actively address biodiversity loss. There are therefore a range of geographic scales of decision making (from local to national) and audiences

(public sector, industry, public, research, etc.) that have an interest in the availability of biodiversity data. The indicator is focused on the availability of data collated by the NBN for decision making – evaluating actual use within decision making is more difficult.

Background

The NBN works to set standards for data exchange and data accuracy and captures wildlife data in a standard electronic form; allowing the integration of data from different sources, and use of the internet to enable data to be used in different ways by as many people as possible. History of the development of the NBN Gateway and Atlas, and a detailed timeline are available from the NBN website. Key points to note in the context of this indicator are:

• The development of a prototype NBN Gateway in 2001;
• Redevelopment and relaunch of the Gateway in November 2013 – which is the start point for the development of many of the metrics used here; and
• The switch to the NBN Atlas in April 2017.

Now registered users can request enhanced access to records of sensitive species from data providers through the NBN Atlas and if granted the users can access higher resolution data just like under the previous system, the NBN Gateway. This gives data providers control of who can use their data for particular purposes. Where requests are made to access protected species records through the NBN Atlas, this can be given but the location details are generalised in the NBN Atlas in order to protect the actual location of the protected species. Not all records can be given enhanced access through the NBN Atlas therefore users may need to contact the data providers. Government and its arms-length bodies have over recent years been moving much more to open data, and the development of the NBN Atlas fits with that agenda.

One of the principal means of collation and interpretation of this data is the network of local records centres and the Biological Records Centre (BRC) which collates and interprets data from many national recording schemes. The BRC regularly update more than 40 data resources on the NBN Atlas, often bi-monthly. These are datasets from recording schemes and projects that use iRecord (https://www.brc.ac.uk/irecord/nbn-sharing) for record management and verification. The majority of the records shared are verified but some schemes and projects also share unverified records, which are clearly flagged as such within the NBN Atlas. BRC also supplies unverified data to the NBN Atlas for some species groups that are not currently covered by a national recording scheme. The NBN Atlas is a free online tool that provides a platform to engage, educate and inform people about the natural world. It enables the combination of multiple sources of information about UK species and habitats and provides the ability to interrogate, combine and analyse these data in a single location. Individual records, for example for plants, mammals, birds and invertebrates, are stored on the NBN Atlas. Records can be quickly and easily accessed and displayed on a map of the UK in a number of different ways to aid understanding of the distribution of particular species in the UK.

This biological information is vital if the distribution and abundance of species and habitats is to be understood. Without it, making informed decisions on how to protect the UK's wildlife is much more difficult.

Figure 24.3: Resolution of publicly available records on the National Biodiversity Network in May 2015 to May 2020
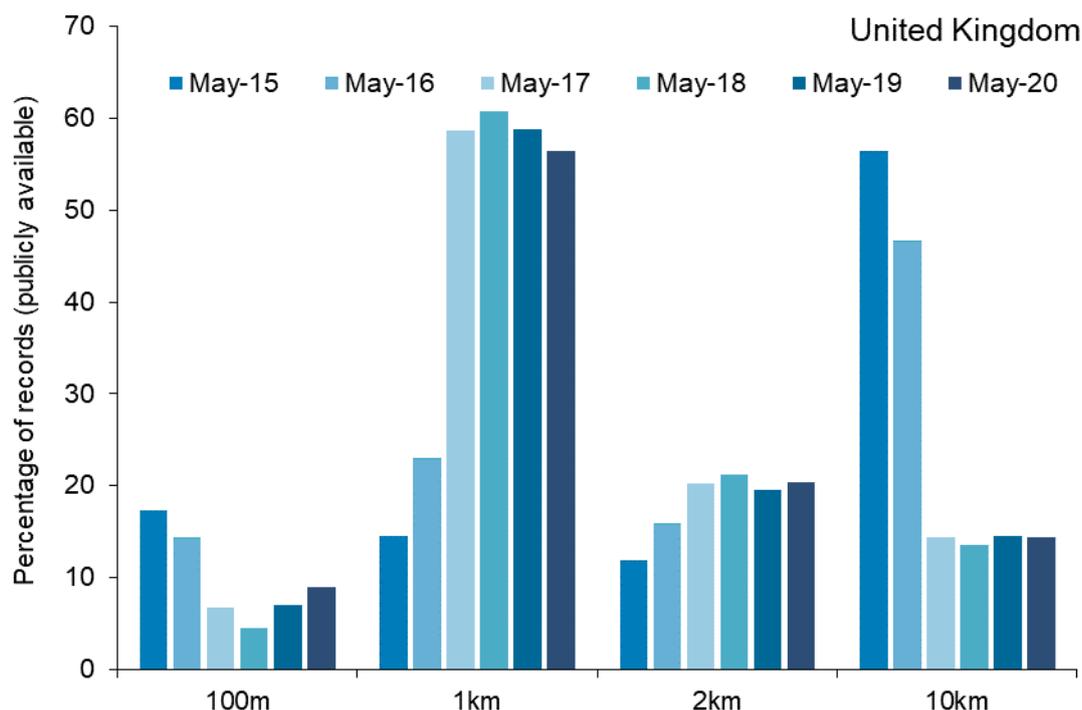

Note: The data represented are a snapshot of the data available as at 4 May 2015, 2 May 2016, 31 May 2017, 31 May 2018, 31 May 2019 and 31 May 2020 sourced from the NBN.

Source: National Biodiversity Network.

Figure 24.3 shows an increase in the proportion of publicly available records at 1km^2 (from 14.5% in May 2015 to 56.4% at the end of May 2020) and 2km^2 (from 11.8% to 20.3%), and a decrease in the proportion at 100m (17.3% in May 2015 to 8.9% in May 2020) and for 10km^2 (56.5% in May 2015 to 14.4% in May 2020). This is partly as a result of a change in the data access policy by a major contributor to the NBN Gateway, Butterfly Conservation, which decided in 2015 to make approximately 5.7 million records prior to 2010 available at a 2km^2 resolution, which previously had not been accessible. The vast majority of the records from the British Trust for Ornithology (BTO) were at the 1km^2 resolution and as not all of the records were transferred from the Gateway to the Atlas it is likely that some of the records at 10km^2 resolution were not transferred across. There has been an increase in the number of records at 100m scale between May 2018 and May 2020. This is probably due to both the Marine Biological Association (MBA) and the Centre for Environmental Data and Recording in Northern Ireland (CEDaR) uploading a number of marine datasets.

Figures 24.4 and 24.5 show the number of downloads and the number of records downloaded since November 2013 when the NBN Gateway was relaunched. Since 2014, the number of downloads (Figure 24.4) has increased considerably in 2019 whereas the number of records downloaded has seen a smaller increase (Figure 24.5). It is not entirely clear why this is. In 2019, there were 11,889 downloads from the NBN Gateway, with a total of 688.1 million records downloaded.

Figure 24.4: Number of downloads from the National Biodiversity Network, 2014 to 2019

United Kingdom
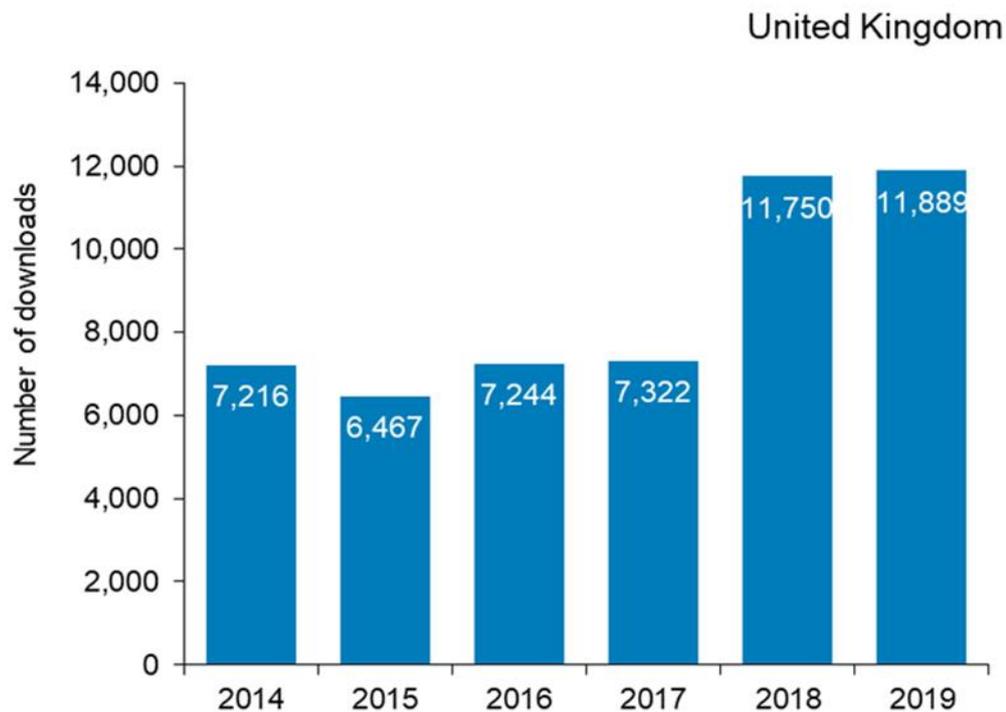
Note: Based on the number of downloads for full calendar years from the NBN Gateway since it was relaunched in November 2013.

Source: National Biodiversity Network.

Figure 24.5: Number of records downloaded from the National Biodiversity Network, 2014 to 2019

United Kingdom
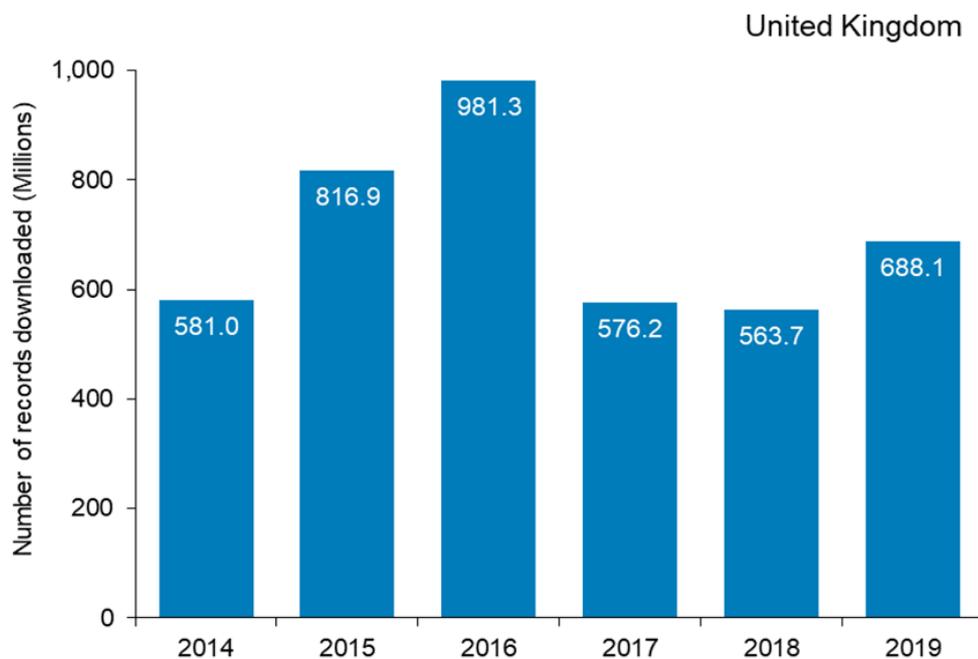
Note: Based on the number of records downloaded within full calendar years from the NBN since it was relaunched in November 2013.

Source: National Biodiversity Network.

Web links for further information

Biological Records Centre: Home page http://www.brc.ac.uk/

National Biodiversity Network: Home page http://www.nbn.org.uk/,

National Biodiversity Network: History https://nbn.org.uk/about-us/what-we-do/history/

National Biodiversity Network Atlas: Home page https://nbnatlas.org/

Last updated: October 2020

Latest data available: 31 May 2020