



**BTO Research Report No. 608**

## **Enhancing Data Quality of Bird Records for the National Biodiversity Network**

Authors

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nbn\_bbrc\_rarities.xls

nbn\_sensitive\_species.xls

Temporal and spatial rules as supplied by Andy Musgrove



## 1. INTRODUCTION

The National Biodiversity Network (NBN) represents a pool of data sourced from a wide range of organisations, many of them voluntary recording societies. An important concern that has emerged is the quality of the data. This is a concern for both the voluntary and other organisations that supply data, as well as for other users of the NBN. Essentially, involving interested public in studying and recording wildlife depends, among other things, on their being able to identify what they are recording and accurately geo-reference the observation; while at the same time making full use of the resulting records depends on the confidence users can place on them.

The British Trust for Ornithology (BTO) collates and stores data collected from across Britain and Ireland by about 40,000 volunteers. Five BTO-coordinated surveys are available in their entirety online: Breeding Bird Survey, Bird Atlas 2007–11, BirdTrack, Garden BirdWatch and the Wetland Bird Survey (WeBS), with the data from these surveys feeding into a single database. BirdTrack is a free online recording system designed to capture records from day-to-day birdwatching activities, allowing and indeed encouraging users to submit both their one-off ‘casual’ sightings and also full lists of species encountered during birdwatching visits to particular sites.

This report aims to establish recommendations for data format for bird records, along with quality assurance and data checking procedures, and advising on best practices for dealing with sensitive records. Additionally, there is discussion on establishing a framework for how bird records should be exchanged and shared. The report comprises five sections: guidance on the information bird records should contain; suggested ‘rules’ for quality-assuring bird records; an overview of the existing processes for verifying these records; advice on dealing with sensitive records; and a suggested data flow model.





## **2. GUIDANCE ON THE INFORMATION RECORDS SHOULD CONTAIN**

### **2.1 Introduction**

This section of the report identifies the constituent elements of bird records and recommends which of these should be considered essential, desirable and optional. The guidance presented draws on the format of several existing datasets including those of the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB), the Scottish Ornithologists' Club (SOC), the Rare Breeding Birds Panel (RBBP), and a sample of county bird clubs and Bird Observatories.

Different end uses of bird data require different essential, desirable and optional attributes. There are no overarching rules that can be applied in all cases; it is typically the responsibility of those planning data collection methodology for particular surveys or studies to determine the essential data fields, then communicate these to the observers who will collect the data. For example, whilst some form of spatial referencing is usually considered essential, the resolution of such referencing is entirely dependent on the end use. A case in point is territory/nest mapping, which would likely require records at 10-m<sup>2</sup> or even 1m<sup>2</sup> resolutions. In contrast, national scale distribution mapping projects such as the Bird Atlas 2007– 11 only require records at a 10-km<sup>2</sup> resolution. Local bird atlases normally map at the tetrad (2-km<sup>2</sup>) resolution, although many local bird clubs prefer records at the 1km<sup>2</sup> resolution.

### **2.2 Essential Data Fields**

Three data fields are essential for all bird records: date, location (including grid reference) and species. Observer name is also vital, though there are instances where bird records that are not attributable to individual observers can be of some value; such cases are considered in section 2.2.4.

#### **2.2.1 Date**

Dates for bird records come in two forms: Single dates and date ranges. Single dates must include day, month and year. The format preferred by the NBN is numeric form dd.mm.yyyy; note that many databases use dd/mm/yyyy. The facility to record date ranges is of value to local recorders and the RBBP, for example, and should be included as separate fields (e.g. first date and last date), in which non-specific dates such as month ranges can be recorded.

#### **2.2.2 Location**

An Ordnance Survey (OS) grid reference is the preferred basic component of spatial referencing. The range of commonly-used resolutions for bird records are 100 m, 1-km, 2-km (tetrad) and 10-km squares. Ideally latitude/longitude coordinates will be converted prior to record submission; this can be done via free online software such as <http://www.movable-type.co.uk/scripts/latlong-gridref.html>.

The optimum minimum resolution for bird records depends on both the nature of and the intended use of the records in question. With certain sensitive records, for example, observers may only feel comfortable submitting such records at a relatively low resolution, such as at the 10-km square level. It is therefore recommended that the functionality is in place to accept such records. Note that whilst records with no spatial reference whatsoever are clearly unsuited for any form of distribution mapping they can still be of value for phenological analyses. It is also important to bear in mind that recording birds at too precise a resolution is often unnecessary and possibly counterproductive, for two reasons. Firstly birds are highly mobile compared to other taxa; hunting raptors, for example, cover large areas relatively quickly and it is therefore inappropriate to record them at 100 m

resolution. Secondly, birdwatchers frequently generate large volumes of data and an insistence on 100 m resolution for every record is likely to be demotivating to volunteer record contributors.

The site definition is another valuable aspect of location information. This can apply to grid references of any resolution and involves the observer specifying whether all their records come from within that area (100 m, 1-km, 2-km or 10-km square) or if the grid reference is simply being used as a centroid.

Polygon-based sites descriptors are used by surveys such as the BTO/RSPB/JNCC Wetland Bird Survey (WeBS); these require the storage of vertices and the order in which they need to be plotted to prescribe the area correctly. Such sites are also referenced by a central grid reference, which could be stored in a separate field.

Site names that can be identified on the relevant OS sheet are favourable. Certain distribution-mapping surveys, however, such as BTO/BWI/SOC Bird Atlas 2007-11 (Bird Atlas), collect some data with tetrad/10-km references only, and provision should be made to incorporate such site identifiers.

### 2.2.3 Species

Species should be stored using both English and scientific names. The inclusion of scientific names is considered highly desirable because it can clarify any ambiguity introduced through use of various English names. For example, Dunnock, Hedge Sparrow and Hedge Accentor all refer to *Prunella modularis*, clearly demonstrating the possibility for confusion if English names alone are used. Furthermore, the use of scientific names allows for consistency in the recording of subspecies/races, where applicable. To illustrate, records of 'Brent Goose' may refer to the light-bellied or dark-bellied subspecies *Branta bernicla hrota* or *Branta bernicla bernicla* respectively, or simply to the species *Branta bernicla*; the use of scientific nomenclature can help to specify to which the record refers.

Unidentified genus members such as 'Unidentified diver' *Gavia sp* are routinely recorded in bird club databases and organised surveys. The same applies to aggregate species such as Marsh/Willow Tit *Poecile palustris/montanus*, Common/Arctic Tern *Sterna hirundo/paradisaea* and Common/Lesser Redpoll *Carduelis flammea/cabaret*.

Each species in the database requires a unique identifier such as the numerical 'species code' used in the BTO online database. A recent development to this database has been the addition of 'parent' species within which 'child' subspecies can be grouped. This would typically be applied to taxa like the Yellow Wagtail *Motacilla flava* complex: Each of Yellow Wagtail (*flavissima*) *Motacilla flava flavissima*, Yellow Wagtail (Black-headed) *Motacilla flava feldegg* and Yellow Wagtail (Blue-headed) *Motacilla flava flava* has its own unique identifier but they are collectively grouped under the 'parent' Yellow Wagtail.

### 2.2.4 Observer

In general, an observer name should be associated with each record. One approach is to simply store forename and surname in an observer name field. An alternative is to store a user identifier, linked to a separate table containing full observer information including contact details.

Since the advent of bird news services, a growing proportion of unattributed bird records are in circulation. Bird news services use a variety of methods for obtaining news, including monitoring blogs and news groups, and regularly use information from their competitors. In these circumstances, the reports are not attributable to a single observer (other than the bird news service in question) but are still used by bird clubs in certain situations. In a recent poll of county bird

recorders and report editors, nine out of the 28 who responded (32%) answered 'Yes' to the following question:

“Would you add records from [named bird news service] that lack observer details to your county database / bird report?”

The majority of those who answered in the affirmative went on to state that unattributed records were of value in certain circumstances only, including instances when such records extend the date range of a long-staying local rarity or where they refer to highly distinctive species such as Waxwing *Bombycilla garrulus*.

### **2.3 Desirable Data Fields**

The inclusion of the following six data fields can add considerable value to bird records: count, breeding status, age/sex/phase of bird, time of observation, observer comments and recorder/determiner.

#### **2.3.1 Count**

A basic numerical count of individuals present, which may include range (100+ or 120-150) and accuracy (use of 'circa'), creates the potential for bird records to be used to monitor absolute numbers of individuals using a particular area over time. Inclusion of a field for **count unit** allows for records of nests, pairs, territories and other units that do not directly equate to a single individual bird.

Deduction of true zeroes, a measure of absence, can be achieved by systems such as BTO/RSPB/BWI/SOC BirdTrack (BirdTrack) by observers indicating that they have submitted a complete list of species detected at a particular location on a given date. WeBS offers a similar function for the recording of gulls; observers are asked to indicate whether or not they have searched for gulls on their WeBS counts, thus making it possible to deduce the absence of individual gull species at particular sites (in cases where the observer has indicated that they have searched for gulls during their WeBS counts).

#### **2.3.2 Breeding status**

Breeding evidence, recorded using the hierarchical breeding codes accepted by the European Bird Census Council (EBCC): <http://www.bto.org/volunteer-surveys/birdatlas/taking-part/breeding-evidence>, adds considerable value to records from the breeding season (usually taken as April to June or July) and should therefore be incorporated into the data model if possible. More complex recording of breeding details such as counts of territories, nests or colonies can be very useful too but are considered of more marginal significance for most records.

#### **2.3.3 Age/sex of bird**

Certain systems, such as BirdTrack and many county databases, store information about the age and sex of individual birds. Such information can be important in the analysis of productivity, for example, and should therefore be retained with records if possible.

#### **2.3.4 Time of observation**

Time of observation can be of value and should be recorded using the 24-hour system in the 00:00 format. Observation start-time and end-time – or start-time and duration – provide a measure of effort for grouped records and also facilitate the assessment of how likely a species was to have

been encountered if its detectability varies with time of day (e.g. Nightingale is less likely to be recorded during a midday observation than an early morning/late evening observation).

### **2.3.5 Observer comments**

Despite the subjective and open-ended nature of free-text comments fields, they can add considerable information to bird records. Such information can be particularly helpful during the process of verification, as a comment can immediately demonstrate that the observer has appreciated the significance of a record of a scarce or out-of-range species, for example.

### **2.3.6 Determiner/recorder**

In most cases for bird records, these will be the same as the observer but to cater for cases of birds identified from skins, descriptions or images, it is worth including this field.

## **2.4 Optional Data Fields**

Note that the following four fields are of most significance where records are grouped as lists; they are of lesser value for/relevance to stand-alone observations.

### **2.4.1 Count/survey type**

Particular recording methodologies such as the Timed Tetrad Visits (TTVs) used in the Bird Atlas or standardised sea-watching practices allow data to be analysed using specific techniques and therefore this field is of potential importance with some datasets. Note, however, that most of the national structured datasets have their own data-handling systems for data input.

### **2.4.2 Habitat**

Surveys like the BTO Breeding Bird Survey (BBS) have extremely detailed and structured habitat recording methodology, the products of which may be worthwhile storing. Other surveys and systems have more flexible habitat-recording protocols, such as free-text fields, which are likely to be less beneficial and therefore not worth storing with individual records. Note that in some cases, habitat can be determined after the event using satellite imagery.

### **2.4.3 Activity**

Activity of an individual or group of birds can sometimes be recorded in a highly structured manner and at other times in a more subjective way. It should be treated in the same manner as habitat information (1.3.5), in other words free-text fields will be of lower analytical value and therefore not worth storing.

### **2.4.4 Weather**

Observations collected during particular count types, especially sea-watching and visible migration records can be better analysed if the weather conditions at the time of the survey are documented. As with habitat data (1.4.2), the more structured the recording methodology for this variable, the greater the value of the data, though the less likely it is to be adhered to, or popular with observers. Note that in most cases, weather can be determined after the event from Met Office data.

## 2.5 Recommendations on Bird Record Information Best Practice

Field	Necessity	Details
Unique observation identifier	Essential	
Date start	Essential	dd/mm/yyyy
Date end	Optional	dd/mm/yyyy – to be used if date range, null if single date
Location	Essential	Grid reference of observation (or centroid of polygon) – 100m, 1-km, 2-km or 10-km resolution
Location definition	Desirable	Area around the grid reference from which records are incorporated
Polygon identifier	Optional	If polygon system used
Site name	Desirable	Should be recognisable on relevant OS Sheet
Species	Essential	English and scientific
Observer	Essential	Could be generic? e.g., BirdGuides
Count	Desirable	Numerical count of individuals
Count accuracy	Desirable	>1 (or 1+) / <10 / circa
Breeding status	Desirable when relevant	Using accepted <a href="#">EBCC codes</a>
Age/sex/phase of bird	Optional	Age using calendar years or 1 <sup>st</sup> winter / 1 <sup>st</sup> summer / 2 <sup>nd</sup> winter / etc. Phase refers to breeding / non-breeding plumage and light / dark morphs of species such as smaller skuas
Time of observation	Desirable	00:00
Start time of observation	Desirable	00:00 – most value for grouped records (e.g. lists)
End time of observation	Desirable	00:00 – most value for grouped records (e.g. lists)
Observer comments	Optional	Free text field
Determiner / recorder	Optional	To be used if bird identified by someone other than the original observer, otherwise as observer
Count/survey type	Optional	Category of survey type e.g., sea-watch
Habitat	Optional	Free text field or predetermined options
Activity	Optional	Free text field or predetermined options
Weather	Optional	Free text field or predetermined options

See also section 4.3 for discussion on the required verification flags for bird records; this is not considered an essential part of a submission from an individual observer.



### **3. RULES FOR QUALITY-ASSURING RECORDS**

#### **3.1 Introduction**

Three basic classifications have been produced for this report: Species ratings based on perceived identification difficulty, local verification thresholds and the British Birds Rarities Committee (BBRC) national rarity list.

#### **3.2 Explanation of Classification of Species by Identification Difficulty**

A species by identification difficulty classification [nbn\_species\_based\_on\_id\_difficulty.xls] was compiled in consultation with a number of highly skilled birdwatchers, using experience of bird identification drawn from a wide range of situations, and repeated exposure to the identification difficulties encountered by observers of various skill-levels. The ratings take into account the relative abundance of the species in Britain and Ireland. Rarer species are assumed to be less familiar to the 'average' observer; hence these species typically have a higher identification difficulty rating than more common congeners. Note that it is an entirely subjective classification and that the ratings err on the side of caution.

The 'ID difficulty rating' uses a scale from 1 to 4:

1 represents species which pose no identification issues for most birdwatchers, such as Oystercatcher *Haematopus ostralegus*;

2 represents species which potentially pose identification issues for less experienced birdwatchers and/or in certain conditions, for example Knot *Calidris canutus*;

3 represents species likely to cause some identification difficulties for most birdwatchers in most conditions, like Curlew Sandpiper *Calidris ferruginea*;

4 represents species that will present a serious identification challenge to most birdwatchers in all conditions. Most rare species with more common congeners that are potential 'confusion species' are given this rating.

The ID difficulty rating makes the following assumptions:

- i) The observer has access to a modern European field guide and basic familiarity with using it.
- ii) The observer uses reasonable quality binoculars during normal birdwatching activities.
- iii) The observer can recognise by sight all common British birds of urban, suburban, woodland and farmland habitats.

#### **3.3 Explanation of Local Verification Thresholds**

Local verification thresholds for arrival and departure dates of migrants, counts and local rarity status were extracted from the BirdTrack database [nbn\_thresholds.xls]. These were preset to a generic national level at the outset of the BirdTrack scheme but were then adjusted by county bird recorders/local bird club personnel so as to reflect the variable status of each bird species throughout the UK. An audit trail is maintained so as to determine how recently these thresholds were updated. This varies from region to region, depending on their level of involvement with BirdTrack, though the majority have amended their verification thresholds within the last two years.

Note that these thresholds are subject to adjustment at any time; those included in this report were current as at January 2011.

### **3.4 British Birds Rarities Committee Rarities**

The British Birds Rarities Committee (BBRC) maintains a list of species occurring as rare vagrants to the UK for which documentation is required as supporting evidence for records at a national level. The criteria for species to be included on this list are a combination of the number of previous records (as a measure of rarity) and the perceived difficulty in identification of the species.

The complete list of BBRC rarities is included with this report [nbn\_bbrc\_rarities.xls]. Note that this list is subject to adjustment at any time; the version included in this report was current as at January 2011. The list of current and recently-removed BBRC species can be accessed via the following link: <http://www.bbrc.org.uk/currentrarespecies.htm>

### **3.5 NBN Record Cleaner**

The NBN record cleaner is designed to be used as an aid to screen datasets by flagging up records that are either outside the normal pattern of occurrence for the species in question or where there is a degree of identification difficulty. In the case of bird records, the record cleaner will make use of a set of existing spatial, temporal and rarity thresholds that have been set by local bird recorders via the online BirdTrack recording system. In some cases, local levels have not been set because the volunteers in the region concerned have not been prepared to use BirdTrack. In such cases, conservative values have been applied, using the best available local knowledge. The spatial and temporal fields take into account the relative likelihood of a particular species occurring at a given location on a given date. The record cleaner will also make use of the identification difficulty criteria described in section 3.2.

Note: It is anticipated that any records supplied to the NBN from the BirdTrack database in future will have already passed through the same locally-calibrated checks and been found not to break any thresholds, or having broken one or more thresholds, will have been actively verified by a local validation team. In cases where unverified datasets are provided from other sources, it is suggested that the record cleaner be applied. The approach to previously-verified datasets will be dependent on the nature of the verification that has taken place, as well as the intended use of the dataset in question.



## **4. THE PROCESS OF VERIFYING BIRD RECORDS**

### **4.1 Introduction**

The process of bird record verification in the UK can be divided into three categories: Assessment of records of rarities at the local and national scale, verification of high count and extreme date records, and verification of records of all bird species at the local scale on a range of parameters (including identification, count, grid reference and breeding status). In all cases, the assessment and verification processes are carried out by local experts, almost exclusively volunteers from the relevant birdwatching community.

### **4.2 Current Practices for Checking Bird Records**

#### **4.2.1 Local and National Rarity Assessment Panels**

Most bird clubs/bird recording areas have a local rarity committee, whose specific concern is to adjudicate on reports of local rarities. Whilst there is a large degree of variation in the mode of operation of these committees, it can be surmised that their primary goal in assessing a record is to establish if the observer has presented enough evidence to establish beyond reasonable doubt the presence of the species in question. Naturally a certain amount of judgement about the character and past record of the observer comes to bear on decisions; an observer with a favourable track record is likely to have his/her records treated more positively than an observer with a history of single-observer records and 'field guide perfect' descriptions (i.e. such high-quality and word-perfect descriptions that they appear to have been copied from a field guide rather than noted in the field). It is worth noting that a significant competitive/psychological element is a factor in bird recording (over and above level of experience), probably much more so than in many other areas of wildlife recording. This is in part because a specimen, or at the very least a good-quality image or sound recording, can be obtained when recording most other taxa. Indeed, bird records committees in several countries now only accept rarity records where photographic evidence has been provided.

The BBRC is the official adjudicator of rare bird records in Britain. Its members are democratically elected by birdwatchers' representatives in each county and serve for a fixed term. The role of the BBRC is the same as that of local rarities committees except that the BBRC deals with national rather than local rarities. The BBRC constitution can be found at the following link: <http://www.bbrc.org.uk/constitution.htm>

#### **4.2.2 Verification of high count and extreme date records at the local scale**

Within BirdTrack, local bird recorders/designated bird club personnel can set verification thresholds on count and migrant arrival/departure dates. Any records exceeding these thresholds are then subject to verification; in other words, they are considered unchecked unless actively verified (see 4.3.1). A similar, if more ad hoc, process occurs with records submitted directly to county records/bird clubs.

#### **4.2.3 Verification of common bird records at the local scale**

Records of common species are treated in various ways. The Bird Atlas requires all records to be validated, including those of common species. An autovalidation process exists for atlas records of common species during the period of the survey. This functions by automatically setting as valid any records where an equal or higher count of the same species has already been manually validated for the tetrad and month in question. Such a system is inapplicable over a longer time-scale though; changing populations and distributions could make a species that was once regularly recorded wintering in a particular area no longer appropriate for autovalidation, for example.

A more appropriate long-term alternative is used by BirdTrack. In this system, records are assumed valid if they do not break the threshold levels, which in turn are both locally-set and adjustable. Should the status of a particular species change over time, the threshold levels can be altered accordingly.

#### **4.2.4 Verification of records for the Bird Conservation Targeting Project (BCTP)**

Records collected for the BCTP come from a range of sources and serve a specific purpose, to produce breeding distribution maps for a suite of rare and declining species for which external land management is required to improve their conservation status. The maps are produced annually to ensure that they reflect recent distribution patterns. Each year a team of volunteers verify the records on specific parameters, in particular to ensure that only squares which are known to be part of each species' breeding distribution are included in the final maps, rather than squares being used in a transitory manner. BCTP verification is carried out through a custom-built module in the BirdTrack system. The following link provides further information about the BCTP: <http://www.rspb.org.uk/ourwork/conservation/projects/targeting/index.aspx>

### **4.3 Record Status During the Assessment Process**

It is essential that any verification process includes the provision to label records according to their current status within the process. Sections 4.3.1 – 4.3.5 describe the key stages through which a record can pass.

#### **4.3.1 Unchecked records assumed valid**

Such records will not have broken the local threshold levels on any of the following parameters: Count, earliest arrival date (migrants only), earliest departure date (migrants only), local and national rarity. Following the BirdTrack model, these records are assumed valid and therefore considered to hold the same credence as verified records. This is denoted in the BTO database via the number 1 in the 'valid' field. Note that local recorders still have the power to change the status of such records if they wish.

#### **4.3.2 Unchecked records requiring verification**

Records breaking threshold levels require verification and should therefore be treated as unverified until this process is complete. This applies to all threshold-breaking records.

As previously mentioned, certain surveys such as Bird Atlas require all records to be checked. Records associated with surveys of this nature should also be treated as unverified until this process is complete.

#### **4.3.3 Verified records**

If a record meets the criteria for verification, the verifier can indicate that it is acceptable. Such records are considered valid and should be labelled as such (i.e. '1' in the 'valid' field).

#### **4.3.4 Records in a state of query**

In situations where verifiers are concerned about the validity of a particular record, they can query it with the observer. This usually involves a query on one of the following parameters: Identification, location (grid reference and/or site name), breeding status, date or count. In the BTO online database the 'valid' field is used to contain a letter code from which the reason for query can be identified (I = identification, B = breeding status, L = grid reference/site name, C = count, D = date).

#### 4.3.5 Invalidated records

Some systems, such as BirdTrack, give the verifier the power to invalidate a record should an agreement not be reached through dialogue with the observer. This is clearly a delicate issue; the 'solution' in this case is to populate the 'valid' field with '0' so that the record does not appear in any outputs but ensure that this action has no effect on the observer's own records as accessed via their online user area. It is unlikely that invalidated records would be required for the NBN. Certain other flags, such as possible or probable, might be of more value; these could be of use in targeting future searches for a particular species, for example.

#### 4.4 County Recorders

County recorders are considered the primary contact for matters pertaining to bird records at a regional level. A list of county recorders with contact details is provided in this section.

##### 4.4.1 List of county recorders

Note that this list is subject to change without notice. An updated list can be found here: <http://www.bto.org/volunteer-surveys/birdtrack/bird-recording/county-bird-recorders>

BRITAIN		
Alderney, CI	Mark Atkinson	atkinson@cwgsy.net
Anglesey	Steve Culley	SteCul10@aol.com
Angus & Dundee	Jon Cook	1301midget@tiscali.co.uk
Argyll	Paul Daw	monedula@globalnet.co.uk
Arran	James Cassels	james.cassels@virgin.net
Avon	John Martin	avonbirdrecorder@googlemail.com
Ayrshire	Fraser Simpson	recorder@ayrshire-birding.org.uk
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## **5. MANAGING SENSITIVE RECORDS**

### **5.1 Introduction**

Bird records can be considered sensitive for various reasons. These include the susceptibility of rare breeding birds to disturbance and wilful egg/nest destruction or theft, and the vulnerability of rare and scarce wintering species to disturbance or wilful extermination. Furthermore, a range of reasons related to the nature of the observation, such as records collected by an observer with authorised access to private land, or records collected during commissioned survey work, can lead to the observer wishing to mark certain records as sensitive. This section of the report deals with two main types of sensitive records; those concerning species on the Rare Breeding Birds Panel (RBBP) list, and those flagged by the observer as sensitive.

It was anticipated that the treatment of sensitive records in this report would extend to a repeat of the analysis on the impact of egg collecting on scarce breeding birds conducted by Colin Bibby, Peter Robinson and Emma Bland. Members of the RSPB Investigations unit, however, are of the opinion that this would not be worthwhile. In the last decade – since the introduction of new legislation increasing the severity of penalties for egg-collectors, resulting in the jailing of 11 collectors – egg-collecting has become much less of a problem in the UK. Although it has not disappeared completely, the scale of egg-collecting may have dropped to less than a fifth over that period. For example, seven Osprey clutches were reported stolen annually in the past, whereas nowadays there are often no reports in a given year. In addition, many of the most determined egg-collectors who remain active are thought to have shifted their attentions overseas and have also become extremely adept at hiding their collections; hence seizures of collections have become much rarer. As a result, the RSPB Investigations unit have comparatively poor data on the current level of egg-collecting pressure, and the data that do exist are biased towards reports of egg theft from commoner, more obvious species such as Mute Swan, so are probably not reflective of the true picture.

The contents of those collections that have been seized, the logging of reports of thefts and the details of cases and prosecutions are not stored in a manner that allow for straightforward extraction of the data needed to repeat the analysis of Bibby *et al.*, and the RSPB Investigations unit are unable to hand over raw data to the BTO to conduct the analysis due the highly sensitive nature of these data. A combination of this issue and the reservations expressed about the value of a new analysis led the RSPB Investigations unit to the conclusion that it was unjustifiable to commit the RSPB resources that would have been required to do this.

### **5.2 Reasons for Record Sensitivity**

#### **5.2.1 Rare Breeding Birds Panel ratings**

The RBBP collects breeding data on the rarer bird species breeding in the United Kingdom. In particular, its records allow the production of annual totals of breeding pairs for each species on its list. The RBBP species list is divided into 4 categories:

- Category A: Rare species
- Category B: Less scarce species
- Category C: Less scarce and widespread species
- Category D: Rare non-native species

The RBBP advise organisations such as the BTO and the RSPB how best to protect the records of the sensitive species listed in Category A and B, through ‘ratings’ that indicate the resolution to which records of each species can be mapped or otherwise published. The RBBP ratings for Category A and B are supplied with this report and their application is discussed in section 5.3.

No species are currently allocated to Category C; between 1996 and 2005, the RBBP collected and published data on Barn Owl, Common Kingfisher, Crested Tit and Common Crossbill, which were formerly in this category. Rare non-native species are listed in Category D; the records of such species are not generally deemed sensitive hence their treatment is not considered here. A full list of Category D species is available at the following link: <http://www.rbbp.org.uk/rbbp-species-list-full.htm#d>

Note that the RBBP are currently reviewing the list of species in each category in response to changes in abundance. Alterations are likely to be announced later in 2011; these will comprise a limited number of additions of species that have become increasingly scarce and/or are under-recorded, and small number of removals of species that are now considered too common to be monitored by the RBBP.

### **5.2.2 Observer-flagged sensitive records**

Observers may wish to mark their own records as sensitive over and above the guidelines of the RBBP and/or local recording networks. Likely reasons for this are listed below:

- i) Records collected on private land
- ii) Records collected during a contracted survey (e.g. for a wind farm development)
- iii) Records collected on a site known to hold other sensitive flora/fauna
- iv) Records contain information about a locally sensitive species (e.g. a Raven roost in an area adjacent to an estate managed for shooting)

Whatever the reasoning for an observer wishing to mark a record as sensitive, it is essential that both the facility for observers to do this exists, and that the observer-flagged sensitivity is respected so as to maintain involvement in submitting wildlife observations. Taking BirdTrack as a case study, records flagged as sensitive by the observer are withheld from any BirdTrack outputs (over and above the application of the RBBP ratings). Records remain available to local records, the RBBP, the BirdTrack organiser, Bird Atlas 2007–11 and designated individuals within the partner organisations and the country agencies.

### **5.3 Application of the Rare Breeding Birds Panel Ratings**

The accompanying Excel spreadsheet [nbn\_sensitive\_species] contains the RBBP Category A and B species, on separate worksheets, and the resolution at which records of these species can safely be mapped. For the purpose of the Bird Atlas, ratings were drawn up for the winter season (w), in addition to the breeding season (b).

10 refers to a maximum resolution of 10-km, likewise 100 to a maximum resolution of 100-km. 0 indicates that records of this species should not be mapped at all for the season in question. Blank cells indicate that there are no RBBP restrictions on records of the species concerned in the relevant season.

The Irish Rare Breeding Birds Panel (IRBBP) ratings for the breeding and winter seasons are presented in two additional columns. A separate worksheet containing species only considered sensitive by the IRBBP is included.

Finally, a fourth worksheet is included that contains species considered locally sensitive from a distribution mapping perspective. Several of these species were marked as such in the BTO database at the request of local recording networks, particularly those involved in local tetrad atlases. Some of the species on this worksheet were formerly RBBP Category C species, such as Barn Owl and Kingfisher.



The general principle underpinning the application of the RBBP ratings is to err on the side of caution. Whilst this approach results in records of Bitterns from nature reserves where they are widely known to breed, and Wood Sandpipers on migration throughout England, only being mapped at the 100-km level, for example, the welfare of the birds is paramount and it is considered better to conceal records from several 'safe' locations than to reveal one record from a sensitive location.



## 6. SUGGESTED DATA FLOW MODEL

### 6.1 Introduction

Ornithological data flow in the UK is extremely complex. A number of organisations are involved in encouraging volunteers to collect and submit records, then coordinating the collation and use of these data. In compiling the following models, a BTO-centric perspective has been applied so as to simplify the situation as much as possible. As a result, certain linkages are not illustrated – for example RSPB reserve data flowing to the Rare Breeding Birds Panel and local bird clubs – in an attempt to illustrate the existing data flows in a meaningful manner.

### 6.2 Representation of Existing Data Flow Model

Figure 1 outlines the key existing and theoretical flow of ornithological data in the UK. No distinction is made between paper-based and electronic records because the majority of existing systems have the facility to handle records in either format. Where it is essential that data is in an electronic form (such as for inclusion in the BTO online survey database or local bird club databases), systems are in place to convert paper-based records.

The linkages to the right of the red line are either planned or in partial operation; those to the left are currently operational (barriers not withstanding – see below).

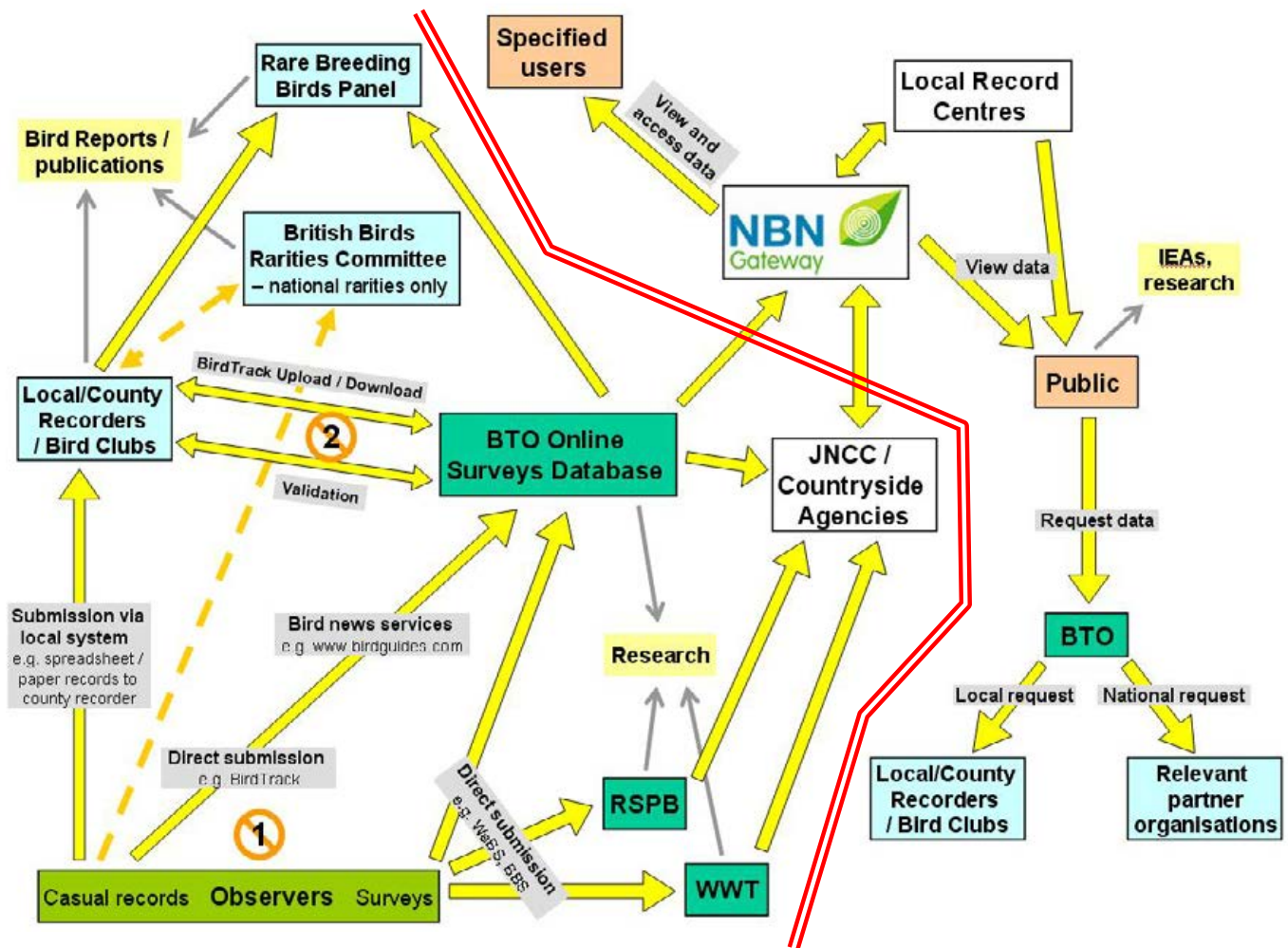
Barriers to existing data flow:



As with any volunteer-reliant method of data collection, observer reluctance to submit records can be problematic. Furthermore, with so many avenues through which records can be submitted, it can be difficult to ensure that the records are submitted to the most appropriate organisation, and with the appropriate level of detail.



The volume of records reaching county recorders and bird clubs can present significant challenges to the volunteers involved with handling these data. Automated validation systems and filterable downloads, such as those operating on the BTO online database, help to overcome this issue. Some county recorders and bird clubs, however, still struggle to find the additional time required to interact with such a huge numbers of records, particularly when many of these relate to the more common species, which are of lesser interest for the bird reports that are produced at the county level.

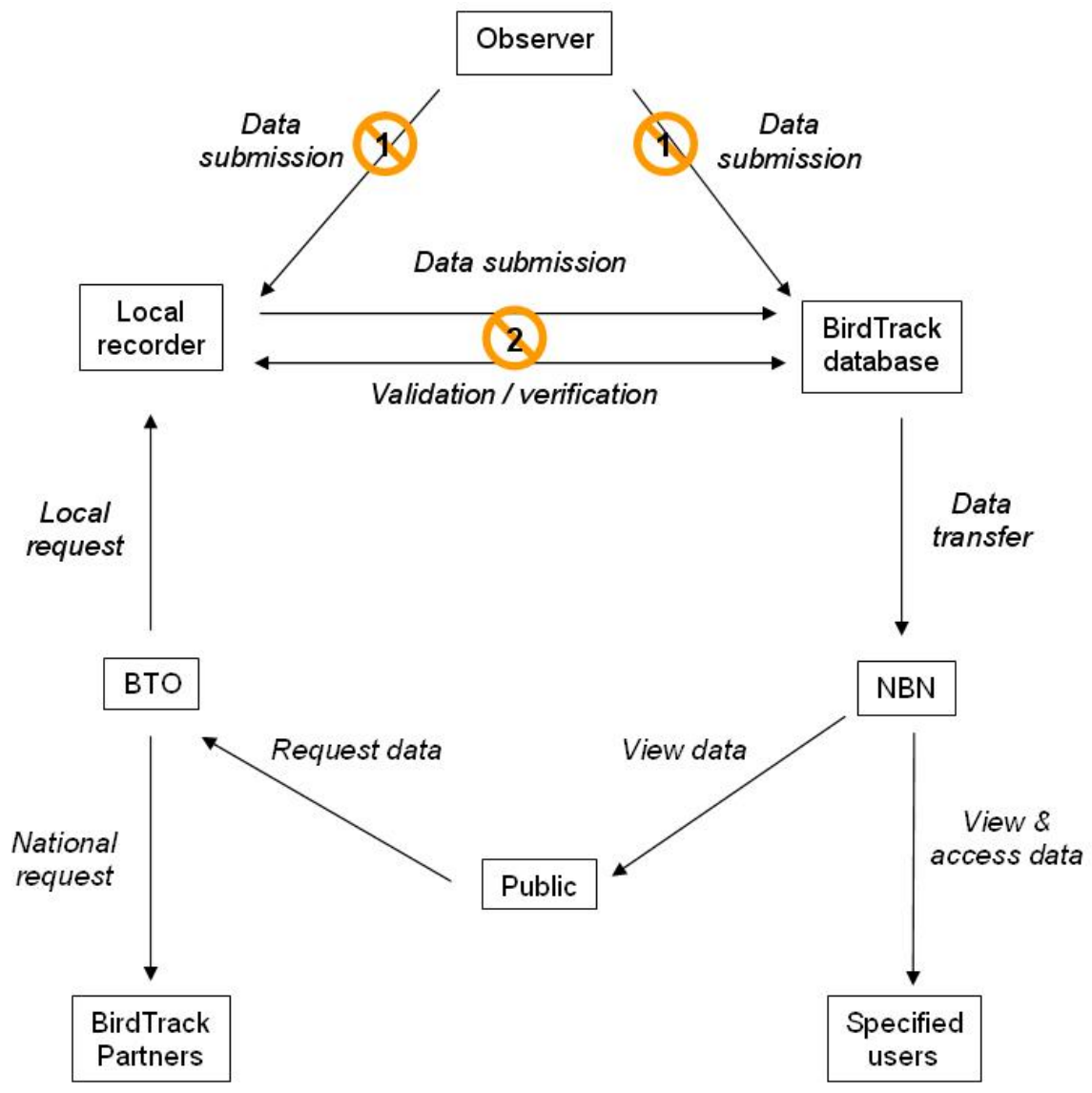


**Figure 1** Model of existing and theoretical ornithological data flow in the UK

### 6.3 Representation of Ideal Data Flow Model

Bird recording in the UK is in the fortunate position of having a very well-established structure. The main difficulties, as mentioned in Section 6.2, centre on the need to encourage observers to use the most efficient existing systems, and the need for regional-level volunteers to process the data, both in terms of verifying records and selecting the relevant information for use in local bird reports and similar publications.

The model shown in Figure 2 is therefore closely based on the existing system but singles out the BirdTrack recording system as a preferred tool through which observers submit their records, and county recorders and bird clubs process those records. It also highlights the value of the National Biodiversity Network as a platform through which interested parties can view the available data and generate appropriate requests, whether such requests are on a local or national scale. Local record centres were not included so as to maintain simplicity; they can be considered as another way through which the public can view the data available on the NBN. The barriers to data flow as described in section 6.2 are marked using the same notation.



**Figure 2** Model of ideal ornithological data flow in the UK