Validation and verification essentials

Only validated and verified records enter the NMRS and BNM, this ensures data quality to inform our conservation, research, and advocacy objectives.

Verification roles

Record verification is a key component of the County Recorder role, these volunteers are under increasing pressure and workload. This is primarily driven by an increasing number of recorders generating records, and a plethora of data capture methods, such as iRecord, Excel, MapMate, Living Record, iRecord Butterflies, BNM Online and NMRS Online. This has implications for the network in terms of succession planning and the attractiveness of the role for potential new County Recorders to fill vacancies now and in the future. The recording activity also varies county to county, so locally some areas have particularly high volumes of data to process, where there are more recorders.

Taking a Team Approach

To manage the increasing workload that they face, some County Recorders operate within teams and have verification assistants who contribute to the validation, processing and verification of records. Using a team approach has many advantages: the workload can be shared and assistants can offer specialist skills such as Excel expertise or familiarity with verification in iRecord. Working in a team can make the workload seem less overwhelming and bring moral support and camaraderie.

Using a team approach and widening the pool of verifiers and County Recorder assistants, will enable the long-term sustainability of this network of local experts. Upskilling of the wider network of recorders will also increase the pool of people suitable to take on the key role of County Recorder and will smooth the way for succession planning. Sharing skills and providing mentoring means that new people can be introduced to verification at an earlier stage in their recording career, dealing with the easier species or verifying records with photographs for example.

Verification Assistants

The role that Verification Assistants take on may vary depending on the specific skills that they have and the areas in which a specific County Recorder would like more help.

Verification Assistants need not be highly experienced butterfly or moth recorders to support their local County Recorder. A Verification Assistant may be assigned verifier access on iRecord for a specific task, such as assessing only records of distinctive species where photographs have been submitted. Over time the Verification Assistant can be assigned additional distinctive species, increasing in complexity as their skills develop.

Key steps to verification

Best practice for verification is to use a standardised protocol to ensure that all records are subjected to the same level of scrutiny. Tools to help with validation and verification include the NBN Record Cleaner software and the Validation spreadsheet developed by Mark Cubitt these can be found in the County Recorder Toolkit.

Once a record has been submitted to the County Recorder, the information it contains should be validated and verified. Validation and verification are two processes that help ensure records are correct and accurate. These terms are sometimes incorrectly used interchangeably, despite being different processes.

Validation is the process of checking that data are in the correct format; important in maintaining accuracy.

In order to validate the data, County Recorders (data managers) will check the format is correct for dates, grid references, species names and other fields. Guidance on formatting data for the NMRS and BNM can be found in the County Recorder Toolkit.

Verification is the process of establishing confirmation that the data are correct and accurate. Two examples of biological record verification are geo-reference verification (checking the location is correct) and species ID verification (checking the ID is correct).

Geo-reference verification: Getting a grid reference wrong by a single digit can displace the record significantly. For example, an Elephant Hawk-moth recorded in Cumbria at NX976180 incorrectly submitted as NX876180 would place it in the Irish Sea. Providing a site name, from a map, allows County Recorders to cross-reference the name with the geo-referenced provided.

Species identification verification: To ensure all species determinations are correct, verifiers may ask questions or may ask the recorder to provide further evidence. Questions may relate to things such as recorder experience or ID guides used. Evidence can range from photos or physical evidence such as a specimen.

Considerations for verification
There are several different factors to consider when verifying records, these include:
- Does the determiner (normally the recorder although this could be a third party if the recorder has sought ID advice) have sufficient experience to identify this species?
- Has the determiner had previous records of this species (or similar species) accepted?
- Has the determiner attended relevant training?
- Has the verifier seen the determiner's ID abilities in action?
- Species identification difficulty
- Is the record within the known flight-period of the species
- Is the record within the known distribution of the species
- Is the habitat correct

Understanding the ID experience level of a determiner can be a key consideration when determining if a record can be accepted or requires further scrutiny. Many verifiers will have a list of 'trusted recorders' that are known to them and whose records can be verified as accepted.

Species-specific factors

Some species are relatively simple to identify, whereas others are easily confused with similar species and may require microscopy or even genitalia dissection in order to reach an accurate species determination. The factors that need to be considered can vary by species. To help verifiers establish if the determination is correct, the following questions can be asked:

Mountain Ringlet has a restricted range and flight period ©stuant63 CC BY-NC-ND

- What features were used to make the species determination?
- How difficult is the species to determine (difficulty may vary depending on life stage or sex recorded)?
- Was a suitable ID resource used to determine the species?
- Are there easily confused species for the life stage (and/or sex) recorded that need to be considered?
- Was a suitable observation method (e.g., naked eye, close-focus binoculars, microscope, genitalia dissection) used?

Record impact on the current knowledge base

It is also important to consider the impact that the record has on the current knowledge base. The greater the potential impact of a record on the current knowledge base, the stricter the verification process. This is particularly relevant for, but not limited to:

- Under-recorded species
- Rare species
- Species outside of or close to the edge of their known geographic distribution
- Species outside of known flight period
- County, region or country 'first' records - even if within the presumed geographic range
- Records that include new information about a species (e.g. noting unknown behaviours or with character outside of known size range)

Records that would have the highest impact (such as rare species outside of their known distribution range) may require an appropriate photograph or voucher specimen that enables the verifier to confirm the record as 'Accepted - Correct'.

Obtaining further evidence for verification

Part of the verification process may involve the verifier trying to obtain further information from the recorder through questions or even asking to see photographs or a specimen. This is particularly important for difficult to identify species. The provision of a photograph allows verifiers to confirm the species determination in many cases (provided the features that make the species distinct are visible) and allows for the verification status with the highest accuracy to be assigned: 'Accepted - Correct'.

Evidence that supports species determination is very useful to verifiers when assessing the verification status of a biological record. It's only through evidence that a verifier can reach the 'Accepted - Correct' verification status that means that the verifier was able to reach the same species determination as the record determiner.

Submission of photographs of **distinctive species** that can usually be identified from a photograph is a great means of improving the accuracy of records. It allows verifiers to

confirm the species determination in many cases (provided the features that make the species distinct are visible) and allows for the verification status with the highest accuracy to be assigned: 'Accepted - Correct'.

However, it is often the distinctive and easy-to-identify species that are recorded in greater numbers so more photographs can result in verifiers spending more time checking photographs as they may feel an obligation to check each record individually rather than accept them in bulk as 'Accepted - Considered correct'

Difficult Species are those that cannot be identified by whole organism photographs alone. For example, many species require microscopy or dissection to reach a species determination. In these cases, photographs may have some limited use that helps the verifier assess if the determination could be plausible or is clearly incorrect, but they do not enable the verifier to accept the record as 'Accepted - Correct'. In these cases, new recorders may be frustrated that their record is not automatically accepted when a photo has been attached. In addition, verifiers may spend more time constructing the responses to these record submissions by explaining why the specific photo can't be used to reach a species determination and what the correct method of ID is for this species/group.

Copper Underwing and Svensson's Copper Underwing are difficult to identify from a photograph ©Butterfly Conservation CC BY 4.0. Image (right) Possibly Svensson's Copper Underwing ©Butterfly Conservation. Photographed by Les Evans- Hill CC BY 4.0.

Although, in some cases, it should also be noted that photographs can still be extremely useful for tricky species if the correct kind of photographs are submitted. For example, some experienced recorders may include macro photography of key identification features that provides evidence of their species determination and may even result in the record being assessed as 'Accepted - Correct'.

Voucher Specimens are required for some species, particularly those that are both rare and require microscopy or genitalia dissection. However, it is not uncommon for recorders to opt-out of killing/collecting specimens and in cases where a voucher specimen is required but not provided this would result in the record not being accepted.

Further information on difficult species and verification guidelines for butterflies and moths can be found in the County Recorder Toolkit.

Standard verification status terms
There are 3 broad verification status terms (known as Verification Status 1 and in use by both iRecord and the NBN Atlas) that can be applied to a record:

Accepted: The record is accepted as meeting the standard required for inclusion by the recording scheme or project in question.

Not accepted: The record is NOT accepted as meeting the standard required for inclusion

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Unconfirmed: The record is in the system but has either not been looked at, or a verification decision not yet been reached.

In iRecord these terms are broken down further into more detailed verification statuses (known as Verification Status 2):

Verification status 1		Verification Status 2	
Accepted		Correct	☑
		Considered correct	☑
Not Accepted		Unable to verify	☒
		Incorrect	☒
Unconfirmed		Plausible	☑
		Not reviewed	

Accepted record status terms

Correct: The verifier is able to confirm that the species has been identified correctly, usually on the basis of photo/s or specimen/s.

Considered Correct: The verifier was not able to personally confirm the species identification using photos or a voucher specimen but has a high degree of confidence that the record is likely to be correct, based on a number of criteria based on the difficulty of ID, date, location and recorder skills/experience etc.

Not Accepted record status terms

Unable to verify: The verifier has a high degree of confidence that the record is likely to be incorrect based on the difficulty of ID, date, location and recorder skills/experience (and where no photo/s or specimen/s are available); or photos are available but do not show enough detail to confirm the identification; and/or the record is not sufficiently well documented to confirm (e.g., location is vague).

Incorrect: The verifier is able to confirm that the species has not been identified correctly, or the record is erroneous in other respects, on the basis of photo/s or specimen/s, or on information from the recorder.

Unconfirmed record statuses

Plausible: The record is plausible based on species, date and location, but there is not enough supporting evidence for the possibility of misidentification to be ruled out. This is not considered as an Accepted record.

Not reviewed: The record is in the system but has either not been looked at, or a verification decision has not yet been reached (this is the default status until a verifier has assessed the record).

Communicating verification decisions with recorders

New recorders that have misidentified species will benefit from an explanation about where they have gone wrong and how to improve their skills for the future. Trusted recorders may simply be sent a message acknowledging and thanking them for their records.

We are aware that as the number of casual recorders submitting records through online recording platforms increases, the amount of time verifiers spend on responding to records increase too. Although it is important to encourage and inspire these new recorders, it is also important to ensure that verifiers are not overloaded. It is simply not realistic to expect verifiers to be able to provide bespoke responses to every recorder.

The majority of recorders will be appreciative of the support and feedback that they receive from verifiers as it helps them to improve their skills. Some, however, may take offence to their determination being called into question. Usually, a simple explanation of why the record has been queried will be all that is needed as the recorder may not have realised the specific nuances involved with determining the species in question.