



Atlas 2020 guidance for BSBI Vice-County Recorders

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1. Introduction to the Atlas 2020 project

In [Recording the British and Irish flora, 2010-2020](#) (BSBI, 2010) the BSBI set out its aims for 2010-2020. The most important project proposed was a “comprehensive update of hectad¹ records in the period 2000-2019, in preparation for a third Atlas of the British and Irish flora..”. It also helpfully set out the resolution of recording. Since then various articles have been published in BSBI News and much information has been presented to Annual Meetings. This document collates all that information and presents it systematically to help VCRs with Atlas 2020.

Like previous atlases, the Atlas 2020 project aims to produce comprehensive maps for all native and well-established introduced taxa occurring in Britain and Ireland, and analyse and report on the changes that have occurred over time.

1.1. Comprehensive update of hectads, 2000-2019

All VCRs in Britain and Ireland should devise a sustainable and (hopefully!) enjoyable recording program to achieve at least sample coverage within **all hectads** in their vice-county between 2000 and 2019, inclusive. Recorders in many vice-counties have already made significant progress over the past 15 years, perhaps as part of plans for county floras, or just general recording. For them the priority may now be filling gaps in hectad coverage, habitats and particular species (groups).

2. Atlas 2020 Recording

2.1. Sampling

If the county is small or has many recorders a full survey of all tetrads, or even monads, in each hectad may be possible. However sub-sampling squares may be the only achievable approach for most counties, especially if they are large and/or remote and have few recorders. We recommend that at least five tetrads (2x2km squares) are surveyed in each ‘full’ hectad. ‘Partial’ hectads should be sampled on a proportional basis (i.e. 1 where the land area is 20%, 2 where 40%, and so on).

Previous research has shown that a sample of five tetrads will produce around 80% of all taxa previously recorded in a full hectad – *assuming* that the tetrads are carefully selected to include the best examples of all the habitats present in the hectad or are known to be rich. You could also search for any additional notable species known from the hectad. Or for a bit of fun, you might try recording in a square with no previous records – who knows what you might discover!

In Ireland where this level of coverage is a big challenge with so few recorders on the ground, we are recommending at least three tetrads be surveyed in each full hectad or *pro-rata*.

Monad (1x1km square) recording has become more popular than tetrad recording in recent years. It has many advantages, not least being simpler to see on maps when out in the field. To achieve the

¹ A hectad is a 10x10 km Ordnance Survey square.

same statistical tetrad re-recording rate, 16 monads should be selected in a full hectad or *pro-rata*. For Ireland, the number of selected monads corresponding to three tetrads is 10. (See Annex 1 & 2).

A popular compromise is to record monads nested within tetrads. Generally a full species list is made for the first monad to be visited in the tetrad, and anything new in the other monads subsequently visited in the same tetrad recorded with its own monad grid reference (preferably on a new recording card, for clarity and ease of data entry.)

2.2. Boundary squares

When recording in a square that straddles vice-counties boundaries, please keep the records from each vice-county separate. Detailed VC boundaries can be checked using the [Grid Reference Lookup Tool](#) on the BSBI DDb website. You may wish to arrange with neighbouring recorders how these cross-border squares are surveyed.

2.3. Resolution of recording

Whilst all recording should be at tetrad resolution or higher (including Scotland and Ireland), notable species (listed in the table below) should be **always** be recorded to least at 100 m resolution - i.e. using a six figure grid reference.

| Resolution of recording | 10 m | 100 m | 1 km | 2 km |
|---|------|-------|------------------|------------------|
| Nationally Rare & Scarce | ✓ | ✓ | | |
| Priority Species (e.g. UK & Irish Red Lists, UK BAP) | ✓ | ✓ | | |
| Other threatened (e.g. English and Welsh Red & Scottish Biodiversity Lists) | ✓ | ✓ | | |
| County rare & scarce | ✓ | ✓ | | |
| Axiophytes | ✓ | ✓ | (✓) ¹ | (✓) ¹ |
| New county or hectad records | ✓ | ✓ | | |
| Refinds of species thought to be 'extinct' | ✓ | ✓ | | |
| All other species | ✓ | ✓ | ✓ | ✓ |

¹ Lower resolution may be adequate for the more widespread axiophytes.

It is obviously difficult to keep such a long list of species that require higher resolution records in mind. If recorders wish, we can amend the VC-customised cards available on the BSBI website to remove these notable species, to remind users to make full 'front-of-record-card' records. Please contact [Quentin Groom](#) if you would like your VC-customised card modified in any way.

2.4. Number and timing of survey visits

To get the full list of species from a square it should ideally be visited at least twice in different seasons to maximise the chances of recording species with short or extreme flowering periods; either in spring and summer, summer and autumn or spring and autumn (Rich & Woodruff, 1992). However, we realise that the effort required probably outweighs the benefit in remote, montane or upland squares, so we are not asking for such squares to be surveyed twice.

2.5. Taxonomic scope

Atlas 2020 aims to cover all the taxa included in Clive Stace's (2010) *New Flora of the British Isles* regardless of national status. We would also encourage recorders to record charophytes, established aliens, critical taxa, infraspecific taxa and hybrids not included in Stace (2010). However, we are not asking for a concerted effort to collect critical species records (unlike the Atlas 2000 survey).

Although the aim of Atlas 2020 is to map all species, and where possible subspecies, some can be difficult to identify with certainty beyond the aggregate level. It is acceptable, therefore, to leave identification at aggregate level if further determination is not possible. However, the collection of voucher specimens for the determination of difficult and critical taxa is strongly recommended. For more information on materials and methods, see Arthur Chater's excellent guide [Collecting and Pressing Specimens](#), available on the [Atlas 2020](#) webpage. And please make full use of the BSBI Referees to help you.

For more detail on what to record, including taxa which frequently cause confusion or are difficult to identify, a booklet entitled 'Notes on Identification Works and Some Difficult and Under-recorded Taxa', is available on the Atlas web page. There are also a small number of printed copies available from [Peter Stroh](#).

2.6. What and where to Record

There is detailed guidance available on the [Atlas 2020](#) webpage entitled [What and Where do we Record](#). But to summarise: please attempt to...

- Record all natives and aliens in the **countryside** up to the boundary of gardens – where **gardens** includes parks and estates (public or private) and cemeteries. Record anything planted outside these, including street trees. It should include what is growing on the outward side of the wall or boundary if it is obviously an escape (e.g. *Cymbalaria*).
- Record anything growing wild or naturalised within the boundaries of **gardens** including parks and estates (public or private) and cemeteries. When recording within a garden it is important to note the status for all records, except for common non-horticultural native taxa such as *Bellis*, *Taraxacum*, etc. Planted trees in estates etc also worth recording.
- Treat **cultivated crops (annual or perennial), allotments, game cover and wildlife strips** as gardens, i.e. ignore other than the weeds of the planted/seeded area, crop volunteers (escapes/relicts) and contaminants, which can all be recorded.
- Record **woods, plantations, shelterbelts and hedgerows** in the normal way, with the appropriate status attached (see below).

2.7. Status

For nationally native taxa the status of an occurrence (i.e. the origin of a plant at a particular location) need only be recorded if it has clearly been, or is likely to have been, introduced to that particular locality. Therefore the vast majority of occurrences of native taxa can be crossed off

without further comment. Where the recorder feels that a native species has been planted or introduced to the area then they should use one of the codes below. Introduced (non-native) species should also be recorded in this way with the exception of aliens that are widely established (e.g. Sycamore). These can be crossed off without further comment.

- E Established (a taxon which has been present in the wild for at least 5 years and is spreading vegetatively or is effectively reproducing by seed)
- S Surviving (present in the wild for at least 5 years but neither spreading vegetatively nor reproducing effectively from seed)
- C Casual (present briefly, i.e. for less than five years, or intermittently)
- P Planted deliberately, not established

2.8. Use of mastercards

Using the same recording card over a range of dates (i.e. a Mastercard) may make recording easier. However, they can make data entry more complicated. If you use Mastercards we recommend that you use a simple and clear coding system to associate each record with a particular date, as records with full dates are much more useful for relocation in the future, record validation and phenological analyses.

3. Atlas 2020 Records

3.1. Data Entry

Ideally all records will be computerised as soon as cards have been checked and finalised by VCRs after referring to the [BSBI Data Entry Guidance](#). However, field recording should be the priority in a short field season and data entry may be delayed until just after the season. However, cards should still be checked and completed as soon after the field work as possible. Ideally all digitisation should be completed and records sent to the MapMate hub or the BSBI Distribution Database (DDb) by the end of the year to allow time to analyse, monitor progress and plan for the next field season early in the New Year.

We recommend MapMate for data entry because of its simplicity, ease of use to enter, map and analyze data. It also allows records to be 'synched' to our central database. We are happy to supply copies to VCRs and their co-workers on request. We also are able to provide support on a dedicated [BSBI MapMate](#) website. However, we are happy to receive records in other electronic formats such as Recorder, Excel or Access. If you would prefer members to supply records in a format that can be carefully scrutinised before importing into MapMate (rather than accepting a synch), you may like to give them a copy of [this](#) spreadsheet which includes simple instructions.

We realise that not everyone is able or happy to digitise records. Anyone who needs help should speak to their Country Officer or [Peter Stroh](#).

3.2. Validating records

In comparison to Atlas 2000, our capacity to check data centrally will be quite limited. For the 2020 Atlas, the success of the project will therefore depend on a concerted effort by VCRs to review the data we hold for their county. The [BSBI DDb](#) will make this process much simpler and more efficient than for Atlas 2000. The most important records to check are those of the notable species categorised in the *Resolution of recording* section above. Systems are being developed to facilitate the validation of large numbers of records of common species *en masse*. Some guidance on using the DDb and checking records has already been published on the [BSBI DDb Message Board](#) but much more guidance and training is planned.

3.3. Use of records

All records are accepted on the understanding that the information provided by the recorder will be entered into a centrally held database and used in the production of Atlas 2020. Data may also be used for nature conservation, research and education. VCRs should make contributors aware of this.

4. Progress with Atlas 2020

4.1. Monitoring progress

The [BSBI DDb](#) has several tools which are great for monitoring progress and helping to identify gaps in coverage. One such tool is *my county* – a menu option which should appear to the left of *message board* at the top right hand side of the screen when you log in. It has three tabs: *Summary* which includes a year-by-year breakdown of recording since 2000, *Data validation*, and *Atlas 2020 survey coverage*. This last tab displays colour-density maps of the vice-county, showing the number of intensive tetrad surveys and also the number of taxa not refound since 2000.

If you would like to drill down even further, two excellent spreadsheets are available on the *message board* under [Help and Support](#). Both spreadsheets analyse re-recording for Atlas 2020 in a vice-county: one at a [hectad scale](#) and the other at [tetrad scale](#). Full operating instructions are included. These analyses are very useful for assessing annual progress once the previous season's data has been entered onto the DDb. If problems are encountered with the spreadsheets or using the DDb, then queries can be posted on the *message board*. Or if it is all too much, ask your Country Officer for help!

4.2. How Atlas 2020 will interact with other projects

The 2010 *BSBI Recording strategy* set out a number of other projects. We have decided to postpone the proposed repeat of the Monitoring Scheme (Local Change) until after 2020, so to not overburden recorders during the Atlas project. However, we hope that that all VCRs will have produced a County Rare Plant Register (CRPR) by 2019 as the fieldwork for Atlas 2020 and a CRPR can be done simultaneously and the data gathered will be useful for both. We recommend that all counties yet to begin work on a CRPR at least draft a list of species likely to be locally rare or scarce so that detailed records can be made while Atlas recording. Please get in touch with your Country Officer if you would like help to do this.

5. Support for Atlas 2020

5.1. Support from the BSBI

The coordinator for Atlas 2020 is [Peter Stroh](#), with Chris Metherell over-seeing the project to ensure that we meet our targets! We have three national officers to coordinate and support recorders in Scotland ([Jim McIntosh](#)), Wales ([Polly Spencer-Vellacott](#)) and Ireland ([Maria Long](#)). [Tom Humphrey](#) (BSBI Database Officer) and [Bob Ellis](#) (BSBI Projects Officer) are coordinating electronic submission and storage of records, data checking and display.

Do let us know if you need help to achieve full coverage. If you have hectads that are too difficult for you to record, please pass a list of them to the relevant Country Officer as soon as possible. We can then plan how to help with these areas over the final five years, as we do not want to be left with a significant number of difficult-to-access hectads in the last few seasons of recording.

5.2. Support from the membership

We realise that it will be a big challenge achieving full hectad coverage in many large, remote or mountainous counties. It may be that you can tap into the enthusiasm of local or visiting botanists by, for example:

- Arranging long weekends or even weeks specifically to help with Atlas 2020 Recording. Guidance is available online on arranging [Recording Weeks](#).
- Many local botany groups regularly meet and make significant and useful contributions to Atlas 2020 recording.
- You could seek local members who would be willing help with adopting local squares. We are hoping to get targeted recording groups off the ground to help in remote and mountainous areas. If you would like some help from such a group please let your Country Officer have details.
- Promoting the '[Survey a square for Atlas 2020](#)' page on the Atlas 2020 webpage.

5.3. Financial help

A small amount of funding is being kindly made available by the Wildflower Society (WFS) to help with surveying under-recorded areas in both Britain and Ireland. Please apply to [Paul Smith](#), Chair of Records & Research Committee.

5.4. Further information

If you have queries about this guidance please get in touch with [Jim McIntosh](#). If you have more general queries about Atlas 2020 then please get in touch with your Country Officer or the Atlas Coordinator. Also, take a look at the BSBI website and in particular the *Atlas 2020* web-page that brings together all the information you will need about the project, including key resources, such as recording cards, guidance documents, lists of under-recorded squares and targeted field meetings, etc. We will also provide updates in BSBI News as well as at BSBI events such as national AGMs, Annual Exhibition Meetings and Recorders' Conferences.

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7. Annexes

Annex 1

Number of squares to sample survey to achieve particular re-recording rates in 'full' hectads.

| Squares to survey to achieve re-recording rates: | 50% | 70% | 77% | No. squares in Hectad |
|---|------------|------------|------------|------------------------------|
| Number of selected tetrads | 2 | 3 | 5 | 25 |
| Number of random tetrads | 3 | 5 | 8 | 25 |
| Number of selected monads | 4 | 10 | 16 | 100 |
| Number of random monads | 10 | 28 | 38 | 100 |

Annex 2

Corresponding number of squares to sample survey in 'partial' hectads

| % area of hectad | Tetrad Ireland | Tetrad GB | Monad Ireland | Monad GB |
|-------------------------|-----------------------|------------------|----------------------|-----------------|
| 80-100 | 3 | 5 | 10 | 16 |
| 60-80 | 3 | 4 | 8 | 12 |
| 40-60 | 2 | 3 | 6 | 8 |
| 20-40 | 2 | 2 | 4 | 4 |
| <20 | 1 | 1 | 2 | 2 |

