

LOst Rarities in England

BSBI England Project LORE DRAFT Guidance Notes

These notes are fairly comprehensive, but field experience may lead to some changes. Any substantive ones will be advertised through the recorders' eNews.

Rarities can exist on many levels: locally, county, regionally or country. Even the common *Bellis perennis* (**Daisy**) can be a rarity in some habitats.

Project vision

To involve a wide range of participants

To document the distribution and habitats of our declining species

To investigate the threats to these species

Project aims

The project has multiple aims:

- encouraging members to go out plant hunting;
- attracting beginner botanists to recording;
- re-finding ordinary species that are apparently lost, but simply unrecorded at hectad level across England;
- re-finding threatened species that are apparently lost at hectad level across England;
- clarifying why species are being lost;
- helping to inform conservation of habitats;
- encouraging the writing of papers for *B&IB* or *EBN*;
- providing data for student projects;

Who is it for?

- VCRs
- Local groups or networks
- Individual botanists at all levels
- Students and supervisors
- Other volunteers

VCRs can choose whether to take part and look in their v.c., but the project is intended to be suitable for individuals and local groups or networks as well. Participants may choose to look at a habitat or area that transcends v.c. boundaries, for example in a home patch hectad. Some of the apparently lost more common species are readily recognisable and suitable for a beginner to hunt.

We envisage that the project will run for two or three years, or until the next iteration of the BSBI Local Change project commences, whichever is shorter. It is intended as an enabling project for people to follow up an idea that interests them and will not necessarily produce scientific results.

How will we measure success?

- Members go out and find missing plants;

- There is growth in local groups and networks;
- There is student engagement;
- Material is written for publication in *EBN*;
- Papers are written for *B&IB*;
- We gain better knowledge of habitat preferences to inform management
- New wildlife sites are designated;
- We gain a better knowledge of threats : including climate change, agriculture, people etc;

Methodology

The methodology chosen depends on your level of experience. Much of it also assumes that the DDb is up-to-date with the county records.

Beginners

If your VCR is participating in the project, they should be able to supply you with a general list of species to look for. If you would like to participate without the support of a VCR, then contact the project co-ordinator, who is pro-tem the Chair of CfE, Jonathan Shanklin jdsh@bas.ac.uk.

Choose a few plants from the general list for your area that you can recognise. Check in a book (e.g. *Collins Flower Guide* by Streeter *et al.*) what sort of habitat you are likely to find the plants in, then go and look at sites with that habitat in the chosen hectad. As an example, in February I visited the hectad SJ37 in v.c.51 (which is not England!) which had quite a few missing species including *Geranium lucidum* (**Shining Crane's-bill**). I found this in two monads without trouble (the leaves are easily recognisable at this time of year), so in this case the apparent loss was just a lack of recording. Report your find, with the usual what, where, when and who, to your local VCR using their preferred reporting method. As we are in a new date class, it may be helpful to report other species that you find at the same time, particularly if it is at a well-defined site. As you progress you may want to try finding more difficult species, making more complete lists of species found, or move to the next level.

Anyone can use the DDb to find which plants have previously been seen in a hectad or tetrad by using the grid reference lookup tool at <https://database.bsbi.org/gridref.php>. This could potentially be used to narrow down the search, though common plants are likely to be widespread in a hectad. Although this project is designed to look for missing plants at hectad level, beginners may want to stick to their local area and the tool will show which plants have not been seen in the present date class.

VCRs, Local Groups, Networks and experienced botanists

Threatened plants are not just those in a standard county Rare Plant Register or with significant threats in the England Red List. Many once common species are showing a decline, although this may not be sufficient to trigger IUCN criteria for concern at country level. At the county level however, these species may show a decline of over 30% compared to pre-2000 (at hectad, tetrad or monad level), though are still relatively common, and it is such species in particular that need investigation. All these can now be included in a county RPR according to the 2017 BSBI guidelines at https://bsbi.org/wp-content/uploads/dlm_uploads/BSBI-County-Rare-Plant-Register-Guidelines-2017.pdf. A fully comprehensive RPR is therefore the same thing as a Register of Plants of Conservation Concern (RPCC). Whilst creating a fully illustrated RPCC with details of all the plants in it may seem daunting, in the first instance a simple checklist is of great use.

Such a Register is not essential for taking part in the project, though it may provide a focus. If your RPR is not already on the DDb, then consider having it uploaded, so that it can be selected as an attribute in searches. VCRs and approved users can then make use of the DDb to generate lists of their threatened species not seen in hectads since 2000 and local groups, networks or individuals can request lists from the VCR or from the project co-ordinator. They can also use the DDb tool to generate monad lists. This does however assume that all records have been incorporated into the DDb, which is not always the case for those counties which do not use MapMate.

One approach is to choose one or more plants that have apparently been lost from a hectad since 2000 but still persist in an adjacent hectad. Ideally they should be plants that have a reasonably precise location, as a hectad is a large area to search, but you are free to choose whatever species you like. It is preferable that the plant's original habitat is still present, as we shouldn't waste time by looking for some lost plants on new housing sites etc, though that would be worth recording as a reason for loss. It is worth concentrating on those plants in the v.c. that aren't necessarily rare or scarce, but are in decline. A v.c.29 example would be *Asperula cynanchica* (**Squinancywort**), apparently lost from three hectads, but still present in 23 monads. Visit the old sites and see if you can re-find the plants. If the site has a specific name with well defined boundaries make sure that you record the standard site name. Whether you do or do not re-find the missing plant, record what plants are still present and make notes on habitat, population numbers, possible reason for loss, etc on the recording form (see draft). Then visit a nearby location where the plant is still present (or has previously been seen within at least the last decade) and make similar records.

On some occasions the apparent loss will simply be a lack of recording, and if this is most likely the case simply note the fact, without necessarily making a detailed list.

VCRs are free to adjust the methodology to suit their local requirements, and to take the project as a stepping stone for their own ideas. As an example, although this project focuses on hectads, you might want to go to a much finer level, investigating whether the missing RPR species are in un-recorded monads ("Shanklins") where they were previously only noted at hectad level. Another option would be to concentrate on a habitat, for example you might want to concentrate on aquatic species or arable weeds, so could select those to follow up. A further option is to look at species missing from designated sites or areas. The DDb has an option to search quite a wide range of bounded areas, from SSSIs through to individual Parishes, though it isn't clear whether the DDb is populated with some types of site for all counties. Such searches could include Important Plant Areas and Important Arable Plant Areas. There are also filters in the DDb that can restrict searches to particular habitats.

Recording

Every recorder has their own preference in how to record; there is no best way to record, though you must note what, where, who and when. In addition some supplementary information is desirable for the project. Options include:

- The BSBI standard recording cards for each county are at <https://bsbi.org/recording-cards>. The species lists for each county on these are a little out of date, as there has been a significant decline of some species since then, and an increase in others. They do have an advantage for those who like to input records using BRC numbers, however not all species have BRC numbers.

- The LORE recording card at download id="30996" has been designed to be as simple as possible, so that all levels of expertise can potentially use the same form. It shows the supplementary information desired.
- Beginners may wish to just report one or two plants and there is then no need to use any form. Species can be reported using English names, though such names need to be just as accurate as Latin names. For example whilst **Hawthorn** is most likely to be *Crataegus monogyna* there are a lot of other possibilities, especially in eastern England. We do however encourage beginners to learn Latin names as these often give additional information. For example the Latin name for Hawthorn tells you that there should be only one stone in the haw. If there are two stones then you may have *Crataegus laevigata* (**Midland Hawthorn**)
- Some VCRs use notebooks rather than cards as this allows them to retrace the sequence of recording and add additional notes.
- Increasingly recorders are using iNaturalist, iRecord or similar apps. The BSBI is developing its own app. iNaturalist records do feed into iRecord, and there are occasional downloads of records into a holding area on the DDb, but they are not instantly available to VCRs.

On one side of a recording card there is a standard recording list, which gives abbreviated Latin names for around 650 relatively common species across the county or in the case of the LORE card across England. On the LORE card species that are very common have an exclamation mark after them and these do not need any further details. Note that species that are common in some counties may be rare in others! The list was generated via the MapMate software used by many recorders, and as this still uses Stace III names, they are what has been used here.



On the front side you should give the site name (eg Askham Bog SSSI), general area (eg Woodthorpe), nearest feature in the monad (eg Marsh Farm) or the general parish (eg Copmanthorpe CP); the monad grid reference, or better for a small site; and the v.c. Records must be attributable to a monad or better, so if a site spans more than one monad, please record each part separately, unless this is a very small fragment.

For example Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SSSI covers eleven monads and crosses the boundary between England and Wales. The illustration shows the number of post 2000 v.c.40 records for each monad, but does not show the extent of the Welsh part of the SSSI in v.c.50. Each monad should be recorded separately and in this example it is worth recording each SSSI unit or management unit separately as well. If however you were recording in a monad outside the SSSI, give it a different name, for example Whixall CP for records from SJ4935. This can be problematical when part of a well-defined site is a SSSI or other designated site and the rest is not, so the only option is to omit the SSSI part of the site name for records from the part that is not a SSSI. It can be difficult to find exactly where site boundaries are, particularly where county



designation boundaries (eg Wildlife Trust) differ from SSSI or other designation boundaries. In such cases do the best you can! Do not use site centroids with a six figure grid reference as these can be very misleading. Equally if you give an eight figure grid reference all species must be present within a 10 metre radius of that point. Do not give 10-figure grid references as they are rarely accurate to that level unless you have a very expensive differential GPS.

On the reverse side you can note

- the date (if you visit more than once, you can either use separate forms, or use different colours/symbols on the same form for a subsequent visit, but all records must be tied to a single date);
- the species that you were particularly looking for and whether you saw it or not;
- the recorder names;
- any threats to the target species;
- short notes on the site habitat and site management.

There is then space to record additional species not on the card and as it is not tailored to any specific county there may be many that need noting. If you find species of significance – the target species or other threatened species you can also note approximate population sizes, the accurate grid reference and any additional information that might be important. Population can either be given in the standard DAFOR scale, or as an approximate count to the nearest order of magnitude (1, 10, 100, 1000, more than 3000).

If you have your own county recording card, you can of course use this, as it will be better suited to your locality.

Submission of results

As with all botanical recording, participants should send their results to their local VCR, either on a recording form (local, BSBI or project) or as simple text, ideally within a month of the observations being made. This allows the VCR to give feedback, and also a chance to update the local or national database in good time. If you write a note on your experiences or a report for EBN, please send it to Jonathan Shanklin jdsh@bas.ac.uk . If you write a more formal paper on your findings send this to the editor at bib@bsbi.org

Data Logging

Ideally we need a volunteer to design an access database and data entry front end to log the information recorded. Failing that we will have to make do with MapMate, Recorder or your local software. It is possible to enter null records into both MapMate and the DDb, but if you don't find the plant it is probably better to add a comment to the previous positive record, rather than putting in a new entry recording that you didn't find it, as there are many reasons for apparent absence. In MapMate putting in N as the quantity seen implies not found, though doing so will generate a point on a dot map, unless you put in code to prevent the display. In the DDb a VCR can give a record status of "looked for but not found" when adding records manually using <https://database.bsbi.org/editor.php?class=RecordInstance>

Analysis

The level of analysis will depend on whether volunteers (academics, members, students, VCRs or staff) come forward, and on whether this is at local or national level. You could write up your observations for *EBN* to give a county or local picture. If you do this in a more formal

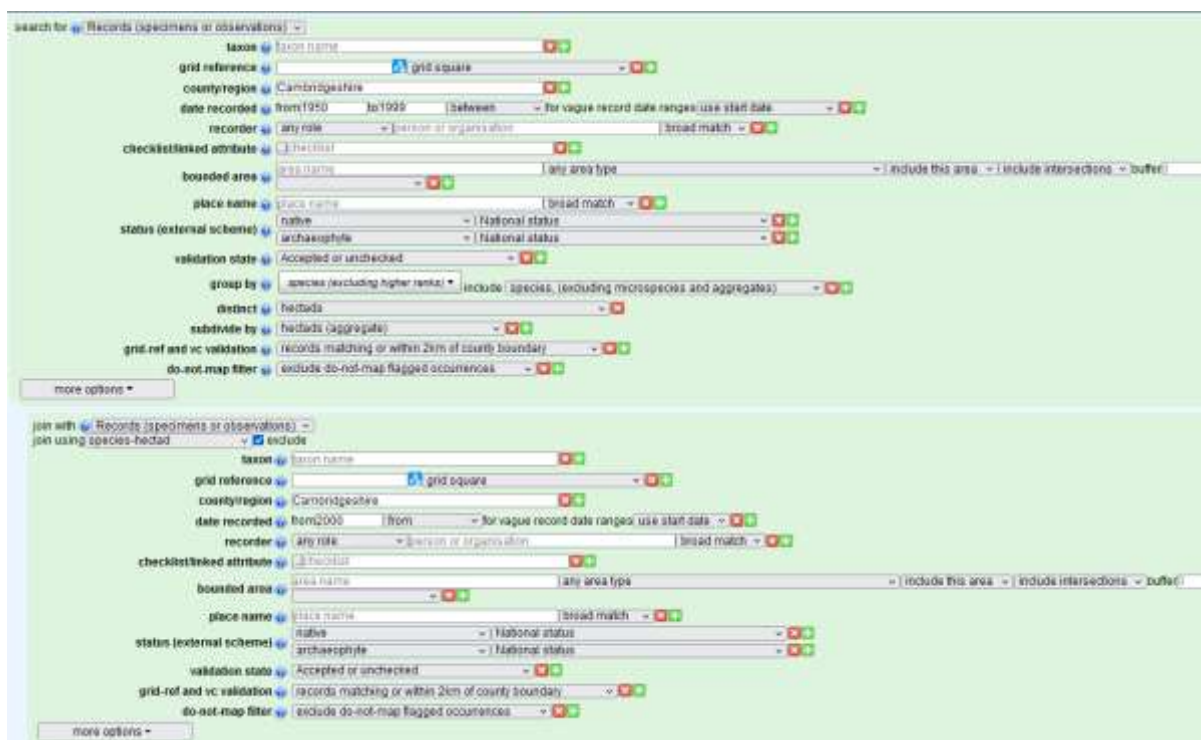
way, covering a suite of species, a paper could be submitted for consideration by *B&IB*. If a suitable volunteer or volunteers come forward there could be more comprehensive analysis across England for a major paper in *B&IB*. Corporate BSBI do not envisage any staff time being available to manage the project, design databases or enter data; unfortunately MapMate is not suitable for capturing the fine detail. Questions that might be investigated include:

- What are the differences between survival and disappearance?
- How much does discovery depend on looking closely?

DDb examples

These two DDb queries may give some suitable suggestions of plants to follow up, the first selecting any native or archaeophyte species and the second using the constraint that the species should be in the county RPR. I have used v.c.29 (Cambridgeshire) in these examples (with thanks to Tom Humphrey for considerably improving my original effort).

This <https://database.bsbi.org/search.php#retrievesaved=0.dr6th&query=9c1f16c20ac124ec6c67df9b80b5366b> joins two sub-queries – the first part selects native or archaeophyte species recorded from 1950 to 1999 in distinct hectads and lists those hectads, the second excludes all species that have been seen in those hectads from 2000. You could use different time periods – I have used 1950 to exclude almost certainly extinct plants, but you could use an earlier or later date or a different date class boundary. For example Kent are trying to refind all the plants on their RPR not seen since 2019.



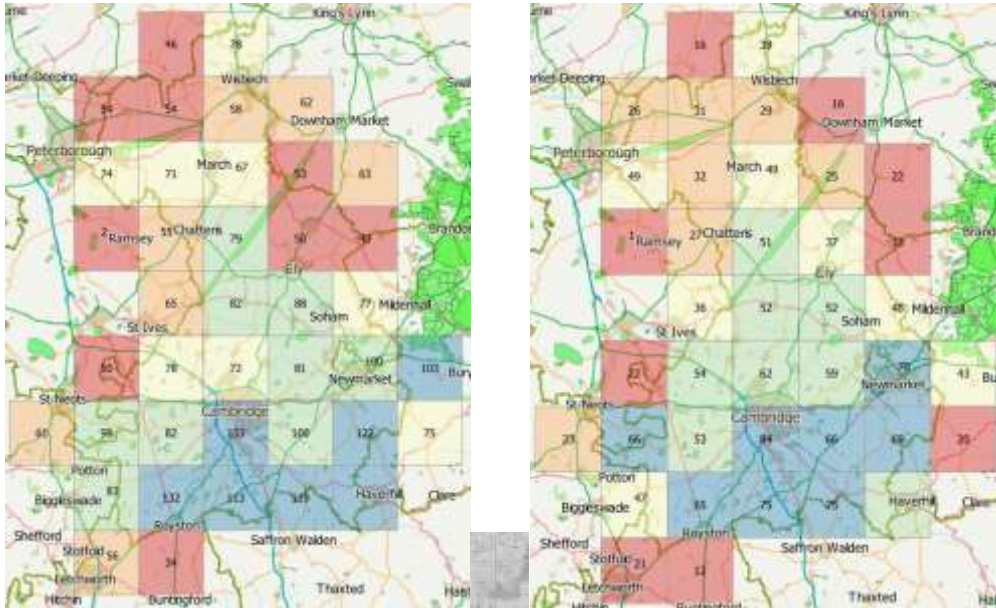
The query gives this output:

species (exclusive)	qualifier	rank	hectads	Number of hectads
<i>Achillea ptarmica</i>		species	TF30,TF41,TL25,TL36,TL49,TL57	6
<i>Adonis annua</i>		species	TL26,TL35,TL45,TL56,TL64,TL65	6
<i>Aegopodium podagraria</i>		species	TL15,TL33	2
<i>Aethusa cynapium</i>		species	TL24,TL34,TL44	3
<i>Agrimonia eupatoria</i>		species	TF20,TL37,TL38,TL59,TL68,TL69	6
<i>Agrostemma githago</i>		species	TL23,TL24,TL65	3
<i>Agrostis capillaris</i>		species	TF20	1
<i>Agrostis gigantea</i>		species	TL24	1
<i>Agrostis vinealis</i>		species	TL54	1
<i>Aira caryophyllea</i>		species	TL55,TL57,TL66,TL67	4
<i>Aira praecox</i>		species	TL39,TL55,TL65,TL66,TL67,TL76	6
<i>Ajuga reptans</i>		species	TL33,TL48	2
<i>Alchemilla filicaulis</i>		species	TL24,TL45,TL55	3
<i>Alisma gramineum</i>		species	TL57	1
<i>Alisma lanceolatum</i>		species	TL44,TL49,TL69	3
<i>Alisma plantago-aquatica</i>		species	TF31,TF50,TL15,TL54	4
<i>Allium oleraceum</i>		species	TL45,TL54	2

By adding your RPR as a checklist to use, as in this example <https://database.bsbi.org/search.php#retrievesaved=0.dr8bh&query=4044ef423013bf3b1d2ba2c8cb697266> you get a shorter list. Note that the v.c.29 RPR on the DDb is the 2019 version and includes declining species; it produces this output:

species (exclusive)	qualifier	rank	hectads	Number of hectads
<i>Achillea ptarmica</i>		species	TF30,TF41,TL25,TL36,TL49,TL57	6
<i>Adonis annua</i>		species	TL26,TL35,TL45,TL56,TL64,TL65	6
<i>Agrostemma githago</i>		species	TL23,TL24,TL65	3
<i>Agrostis vinealis</i>		species	TL54	1
<i>Aira caryophyllea</i>		species	TL55,TL57,TL66,TL67	4
<i>Aira praecox</i>		species	TL39,TL55,TL65,TL66,TL67,TL76	6
<i>Alchemilla filicaulis</i>		species	TL24,TL45,TL55	3
<i>Alisma gramineum</i>		species	TL57	1
<i>Alisma lanceolatum</i>		species	TL44,TL49,TL69	3
<i>Alisma plantago-aquatica</i>		species	TF31,TF50,TL15,TL54	4
<i>Allium oleraceum</i>		species	TL45,TL54	2
<i>Alopecurus aequalis</i>		species	TF40,TL54,TL57,TL66	4
<i>Alopecurus geniculatus</i>		species	TF31,TF40,TL34,TL54,TL65	5
<i>Althaea officinalis</i>		species	TF41,TL46	2
<i>Anacamptis morio</i>		species	TL36,TL46,TL47,TL55,TL56	5
<i>Anagallis arvensis</i>		species	TL35	1
<i>Anagallis tenella</i>		species	TL25,TL55,TL56	3

It is interesting to map where these species are missing from, and I used QGIS with Ordnance Survey open source Zoomstacks map to produce some maps using an earlier form of the query. The output from the DDb is not ideal and I had to do some transformations using a combination of Excel and a FreePascal program that I wrote.



Number of species missing from hectads in v.c.29. Left: native & archaeophyte. Right: RPR.

The pattern of loss seems broadly similar and shows that you don't necessarily need to have an RPR in order to participate. For Cambridgeshire it seems to suggest that the greater loss has been from the chalk downlands and also from the acidic greensands around Gamlingay.

Finally to show the original records for the missing plants in each hectad you can run this query:

<https://database.bsbi.org/search.php#retrievesaved=0.dteee&query=84b2638ac605a511fd66429655c9919>

The output lists the number of missing species in each hectad and by clicking on the number you get a list showing the original records. Many may only to be hectad accuracy, but you may be able to follow up the others.

Abbreviations

<i>B&IB</i>	<i>British & Irish Botany</i>
BRC	Biological Records Centre
<i>EBN</i>	<i>English Botanical News</i>
DDb	The BSBI Distribution Database
IUCN	International Union for Conservation of Nature
LC	Least Concern threat level
QGIS	A freeware geographic information system
RPCC	Register of Plants of Conservation Concern
RPR	Rare Plant Register
v.c.	vice-county
VCR	Vice-County Recorder

Date-class BSBI divides plant records into different time periods. Historically these were rather arbitrary, depending on Atlas recording projects. Since 2000 they have been strictly decadal, with the current one starting in 2020.

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