The BSBI Recording App: tips for recorders

Welcome to the BSBI Recording App, the BSBI vice-county recorders' favoured method for you to submit your records. If you use the App, records you enter will automatically get transferred to the BSBI national database into a "holding pen" where they can be reviewed by the vice-county recorders and by referees, saving you or the reviewers the effort of manually transferring files. The BSBI provides a more comprehensive guide to using the App on their web site:

Recording App - BSBI Documentation Site

These present notes are intended to help you quickly to get the best out of the App for fast, efficient and well-documented recording and to avoid some potential pitfalls.

Do I need to be a BSBI member to use the App?

You will need to register with the BSBI to use the App, but you don't need to be a BSBI member.

You can do this from the link below.

Getting started - BSBI Documentation Site

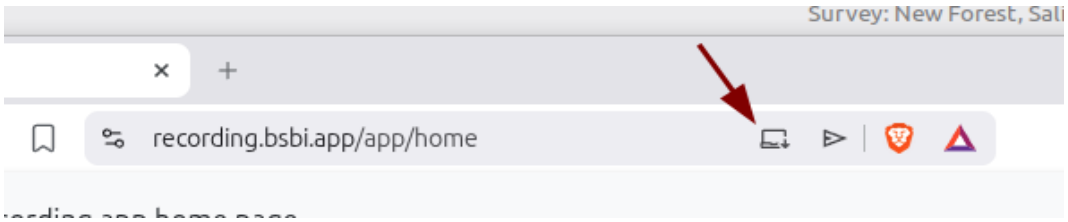
Setting up

If you are using the App on a phone or tablet, there are instructions for putting the app on the home screen of your iPhone or Android device at this link.

Adding the Recording App to your Home Screen

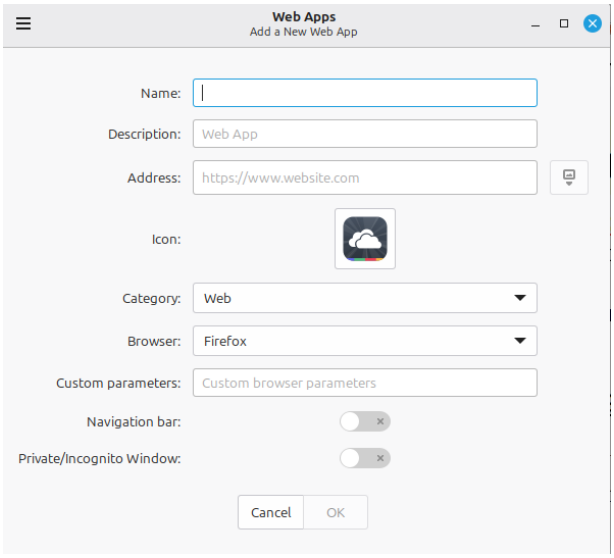
If you are running the App on Windows or Linux, you may prefer to have it appear like any other executable software, rather than having to access it via a tab in your favoured browser. This is referred to as a "web app", and it gives you a cleaner user interface, loads faster and uses fewer resources of your computer.

If your favoured browser is Brave, Chrome, Microsoft Edge or another Chromium-based browser, the simplest way is to open up the web page https://recording.bsbi.app/app/home. In the bar at the top of the screen to the right of the displayed URL (i.e. the link just above) you will find an icon with a '+' or '↓' element which shows a label with the word '**Install'** in it when you hover over it.



Click on this to set the page up as a “web app” on your computer. On Windows, this may only give you the option to put it into the task bar, but it will also appear in the Application Manager pop-up as a “Recent” item. Right-click on it if you want to pin it to the top part of the Application Manager’s window. Unfortunately, at the time of writing this method does not seem to work reliably with Firefox or its derivatives.

For many Linux distributions based on desktops and laptops, you have an alternative way to create a web app which will appear in the Application Manager of your desktop. For instance, using Cinnamon, copy the web address (URL) of the Recording App in your browser to the clipboard, select **Internet/Web Apps** from the Applications Manager, and click on the + button. This method does work with Firefox as well, and gives you the same clutter-free, faster-loading user experience.



Paste the web address from your browser into **Address** and type **BSBI Recording App** as the **Name**. You may also want to change the **Category** depending on how you organise your apps.

Before you go ahead with installing your copy, please read the following section to ensure that you get the App to behave correctly for your grid referencing.

Once you are set up, be sure to install updates whenever the App prompts you. This happens quite often. It ensures that you get the benefit of any new or enhanced features, and any bug fixes are available as soon as possible.

Location tracking

What sort of device are you using?

The Recording App will normally correctly determine whether your device has GPS installed. If GPS is not installed, then the App will expect you to enter grid references manually for each record. If it is installed, when you install the app you will be asked whether you want to allow it to access your device's location.

If you intend to enter data in the field, it is important that you allow this. Select the option **while using the app** if you don't want to be tracked at other times. If your device does not have GPS, you will need to take some other means of determining grid references with you, entering them manually while you are out.

Where are you doing your data entry?

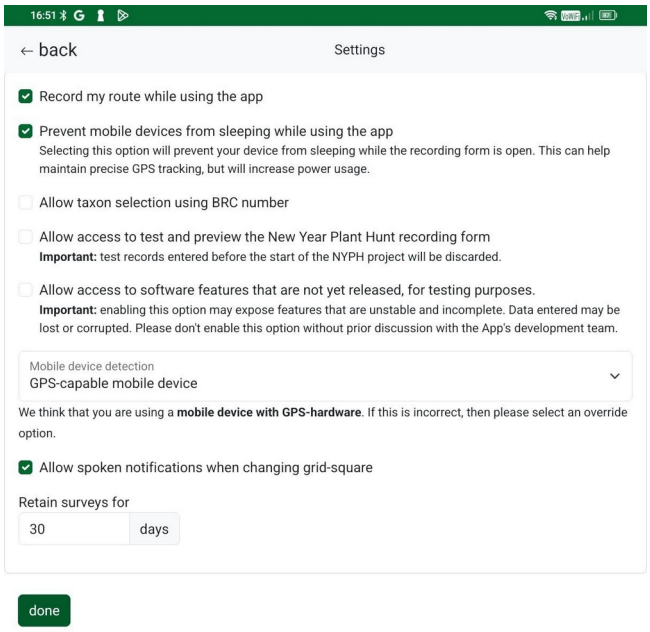
If you intend to enter data directly into the App in the field, you will no doubt want to use the GPS capabilities of your device. In this case, it's important that you also ensure that GPS tracking is switched on in the App. Look for the icons at the top right-hand side or centre of the App window: they need to show that GPS tracking is **on**. Click on the button if necessary, so that it looks like this.

If you will always transcribe your records from written notes into the App at home, then it is really important that if your device has GPS installed and location tracking enabled, you switch off tracking in the App. Otherwise all your entered records will have the grid reference of wherever you happened to be sitting when entering them! Look for the icons at the top right-hand side or centre of the the App window: they need to show that GPS tracking is **off**. Click on the button if necessary, so that it looks like this.

You may want to do the main part of your recording in the field, updating your survey once you get home after checking some details. If this entails entering any new records, don't forget to **make a note of their location in the field, and to switch GPS tracking off when you get home**.

One way to tackle plants whose ID is uncertain is to leave the taxon name blank when adding the new record, but take photos and make sure you capture the other detail you need to associate the right plant with the right record. This will create a record with a blank name entry, which will not be sent to the DDb, so you will need to send the details to a verifier separately. Just don't forget to fill it in once you have a determination!

There is no reason why you can't install the BSBI Recording App on multiple devices, and as long as you use the same sign-in details from your registration on each, they will share your data and settings automatically. This is a good way to operate: phone or tablet for field work, laptop or desktop for reviewing and revisions at home.



Ensuring the best result

GPS technology in phones and tablets has improved over the years, but it is still unreasonable to expect a very precise, highly accurate reading instantly in all circumstances. Remember that the App can be no better than the GPS hardware in your device and the strength of satellite signals. Here are some tips for getting a good outcome. A recent update to the App should make improvements to its performance when signals are weak or intermittent.

Changing the App settings: tapping the 3-bar menu on the App will bring up a menu of options; select **Settings** near the bottom.

- Selecting **Record my route while using the app** will allow you to do a sanity check on the GPS record, either as you go or after the event.
- Selecting **Prevent mobile devices from sleeping while using the app** will keep the GPS updating as you move, improving your chances of it already being accurate as you come to record the next plant. It will consume more battery power, so if you are on a multi-day trek in wild country and don't carry a device recharger pack, or you are using an older device with a battery that drops charge rapidly, you might want to give this a miss.
- If you are recording within an OS grid square (see the next section), selecting **Allow spoken notifications when changing grid square** will give you an alert when the GPS thinks you have crossed the square boundary. This allows you easily to create a new survey identified by the new square, while carrying over other details.

Giving the GPS time to settle: when moving from one spot to another, wait a few moments before starting to record. This is particularly important in places where the sky is partly or totally obscured by the landscape (trees, cliffs etc.). If you still have any doubt, it is also worth switching the GPS off and on again in the App (see earlier) to force it to refresh.

Checking the record: once you've recorded one or more plants at one spot, you will be able to see the grid references against the records in the taxon list.

GPS-generated references will look like this:

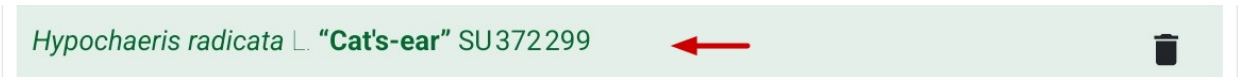
They will show the exact precision to which the grid ref can be trusted, and the number of digits that will be applied in the Distribution Database. The latter is indicated by showing used digits in

eastings and northings in green, unused digits in grey. This can be rather challenging to read when seen against the normal green display of digits.

References that can't be resolved to an appropriate precision by GPS will show a blank against the record.

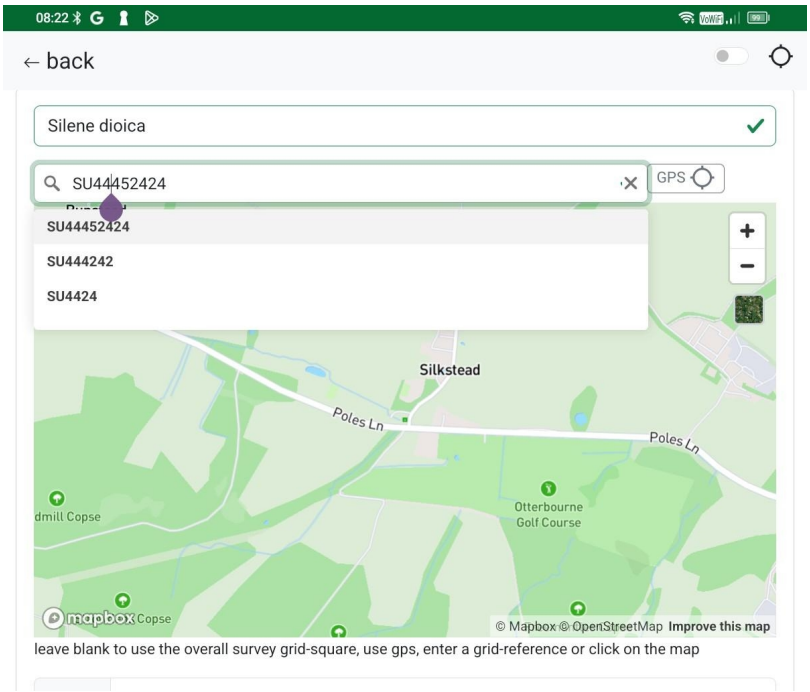
In this case, if you are doing a survey based on a grid square, the App will assume that you are still within the grid square and that square's reference will appear on the BSBI's Distribution Database against the record as its location. If this is not correct or not good enough, you will need to enter a grid reference manually from other sources. See the section **Using other supporting aids** later in this guide.

Manually entered references will look like this:



You can also do a rough sanity check on an existing grid reference by selecting a record and tapping the reference. This brings up a rather crude map which will obviously work best in populated lowland areas.

If you need to enter a new reference manually, or to edit or replace any existing reference, do so, then select the most appropriate resolution from the options offered. This will refresh the map.



Vice-county

The App recommends that you select a vice-county manually if you are recording only within a single vice-county (presumably this is considered an issue near vice-county boundaries). Of course, that relies on your knowing where the vice-county boundaries are! In general, provided your GPS signal is strong enough to give a precise (say 20 metres or better) reading once it has settled, it is probably best to let the App assign vice-county automatically.

Which survey strategy should I use?

The App offers a variety of ways to capture your records. What follows will help you select the method that will minimise the amount of repetitive data entry you need to do, while providing the most support for keeping your recording focused.

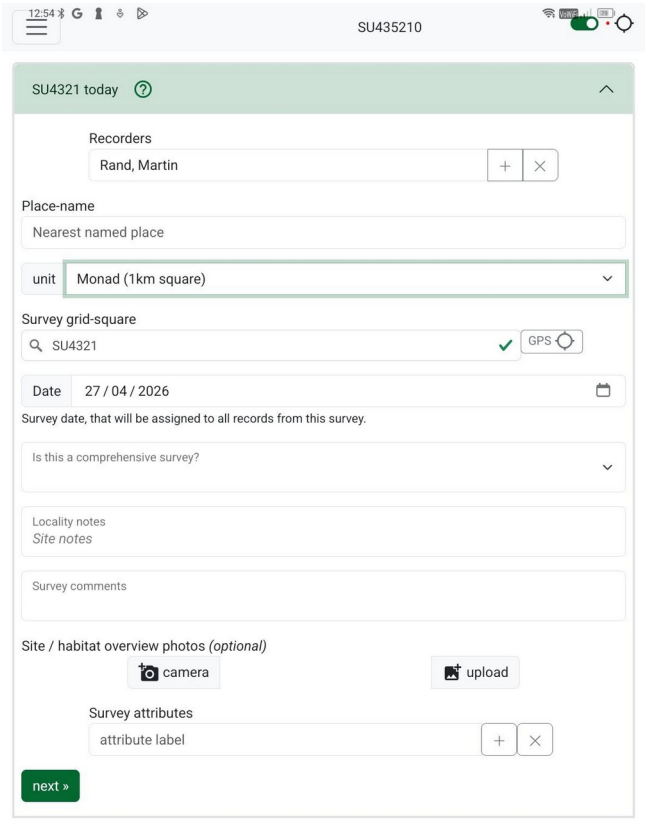
Site surveys: this is the family of methods to choose when you know you will be recording within a constrained area and you want those records to be bundled up as a “survey” for future reference.

This does not necessarily mean that you have to be following a very rigorous survey methodology, as you will soon see. In fact, to minimise the amount of data you have to re-enter for each record, it will often be appropriate even when you are just recording a limited range of plants of interest to you, and not trying to record everything. It is also appropriate when you are entering up a set of records supplied by someone else which can be meaningfully localised in one of the ways offered by the App.

For these purposes, select **Start a new survey** from the home screen.

A set of unrelated records: this is the option most appropriate when you are entering up records that originate from more than one recording event. You might want to use it in the field if you are recording a limited subset of taxa over a wide area on the same day, but if they are not completely randomly placed and not too widespread, then doing it through a site survey may still be the best option to minimise data re-entry.

It is also suitable for entering up batches of unrelated records across multiple recording dates supplied by other people, or from your own field notes.



For these purposes, select **Add a set of casual records** from the home screen.

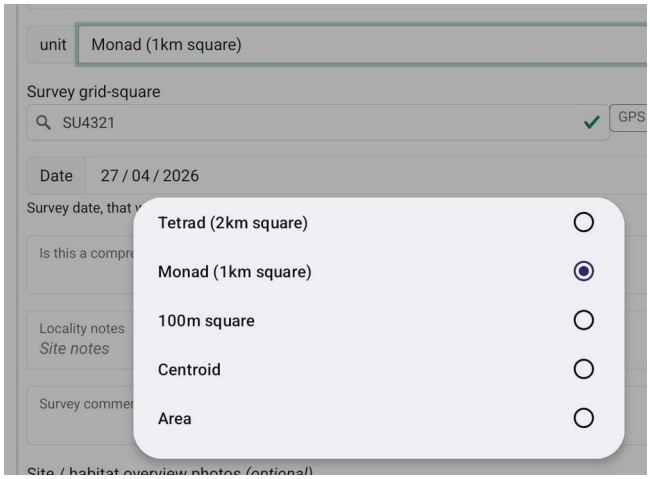
"One-offs": this is for when you spot something interesting while out and about, and want to capture the details while on the move; or when someone else provides the odd record. It minimises the amount of setup information you have to enter before making the actual record. Select **Record a plant** for the purpose.

Site surveys

The advantage of using this recording strategy at the time of recording is that details such as the name(s) of the recorder(s), the name and default coordinates of area in which you are recording, and the date of recording are preserved for each record entered. If you have GPS enabled, the default reference for where you are standing will automatically be set up, so make sure you are on

site before finalising this one.

You do not have to fill in all the listed details for this form, but the “who, what, when and where” are a minimal requirement. It is good if you can keep a common convention going for place names: a recommended format is the general locale such as a town or a civil parish name, or a nature reserve name, followed by a more specific locality within it (such as street in the first case, or compartment in the second) where desirable. Where a rare plant, a critical species or an invasive plant deserves something even more precise, the locality name can always be extended for the individual record.

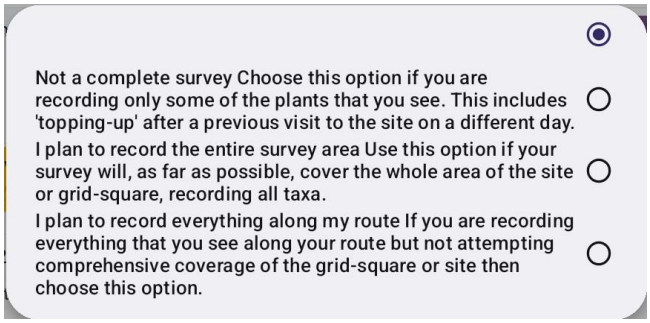


It is important to specify the type of unit you are recording.

The first three of these (**grid squares)** will be self-explanatory, and as long as you followed the earlier advice on configuring the **Settings** page, they give you the benefit of the App providing a warning when you go out of bounds and letting you clone a survey for the new square.

Centroid needs to be used with caution; records coming from land managers or ecological surveyors are often based on land parcels using only a centroid reference, and if you are not using GPS but defaulting records to a very precise grid reference, this can lead to subsequent misunderstandings when others are making use of your records. To mitigate this, the BSBI Distribution Database keeps a record of the kind of reference provided for the survey. If you have GPS enabled while recording and you are getting a good signal, every record will get its own grid reference to the best precision available as described earlier, so this is much less of an issue.

Area is for where you are working over a site or even larger tract such as a parish or town which is extensive but has irregular or ill-defined boundaries. A possible use is for entering up historical records where no precise location details are available. In this case, you may need to enter records with GPS switched off. You will still need to enter a **Survey grid square**, which is unfortunate for the latter purpose but may be changed in a later software update.



One further item that is always worth filling in for a Site survey is found under **Is this a comprehensive survey?** This will give future recorders an idea of how comprehensively the site has been recorded on your visits.

Set of casual records

This strategy allows you to deal with a batch of records coming from a single source but do not

usually relate to a single recording event. You can give the data set a name and record comments but otherwise all data is entered for each individual record. However, the App will provide some defaults as you add each record. They include your name (the registered user) as the recorder, today's date and, if GPS is enabled, a grid reference. They can be overridden but will return to those defaults for the next record. This is not ideal if you are entering someone else's miscellaneous records – from a spreadsheet or an email, say – and it is best to turn GPS off and enter grid references manually, but at least it doesn't require the amount of formal detail up-front for a Site survey.

Record a plant

This is for those times when you see something interesting on your travels and just want to grab its details on your smartphone. It requires no common information to be entered, and provides exactly the same defaults for who, where and when as the previous strategy. This at least makes sense for the intended use.

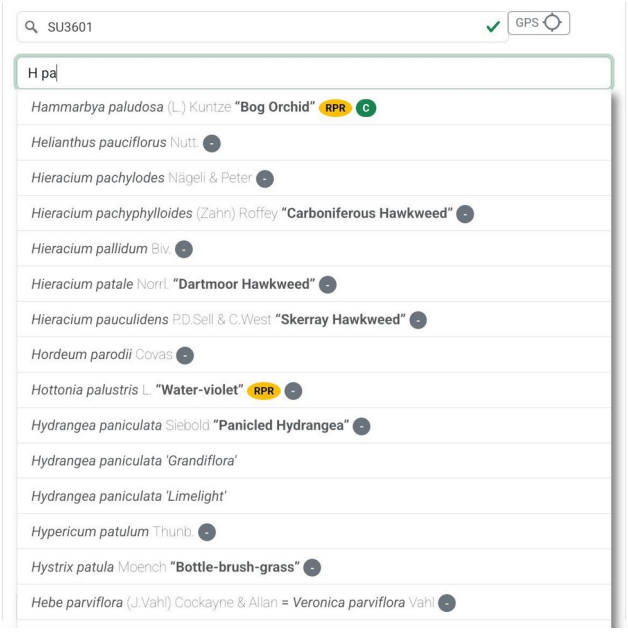
Completing an earlier survey

Often one is likely to have plants or photographs that one brings home for further examination or determination by an expert. The option to **Edit or resume a survey…** provides the way to add these to the list at a later date. Please remember to record the relevant known details for them (particularly grid reference) and make sure that GPS is turned off when adding them!

Selecting a taxon

An important aspect of entering records in the field is fast but accurate entry of a plant's name. The Recording App provides good support for this.

Quick name entry



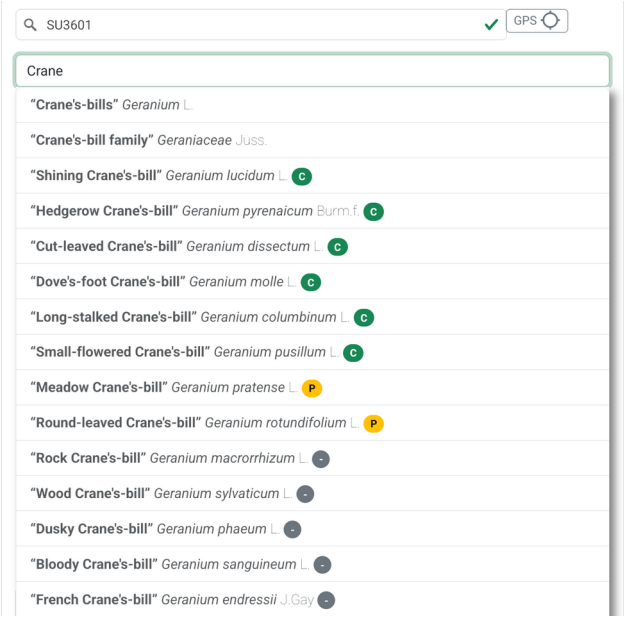
Plants can be recorded either by scientific name or by common name.

Scientific name usually requires less typing, as one can type the first letter of a genus and one or a few letters of the species name. If the recording device has an internet connection and GPS in operation or a grid reference already entered, then the list will be presented with the most plausible taxa for the location at the top.

Otherwise, you may have to type more characters or start with the full genus name if you want a candidate list that is short and not confusing.

It doesn't matter if you don't remember the most recent scientific name for a taxon, or your handbook uses an older name. The App will provide the most up to date name for your older synonym. It preserves both the name you entered and the one it

will henceforth be referenced by in the record.



Common name does not have an abbreviation convention, but you can start in the middle of the name and still get a list.

Make use of the coloured tags to guide your recording. The number of records for the taxon already recorded in the current survey can help you avoid unwanted duplicates for common species. The other labels will guide you towards entering more detail for the record (and maybe taking a set of photographs) for rarities and plants with no recent records. There is a guide to the tags that appears on screen before you start entering the name.

BRC numbers

If your practice is still to take the Biological Recording Centre's botanical recording cards ("BRC cards") into the field, you will know that alongside each abbreviated scientific name there is a coded number (the "BRC number") for the taxon. This provides another quick way to enter records when you return home. Type the number and you will get a pick list of candidates matching all or part of that number, with the perfect match (if it exists) at the top. BRC cards have rather outdated scientific naming but the number will be matched to current taxonomy.

Pitfalls of quick name entry

When recording in the field (especially in adverse weather or when tiredness sets in) there is always a chance that you will aim for a name in the candidate list and hit the previous or next one. Give it a glance before you move on.

Essential information

What is essential information? (The four 'W's)

The What (scientific naming): this allows you to enter most scientific names at Family, Genus, Section, Series, Species aggregate, Subspecies, Variety, Forma and Cultivar level.

Section and **Series** mostly relate to large critical genera. For instance, a Section for *Taraxacum* can often be determined in the field when a species determination requires more study.

Species aggregates are provided for many species clusters where it may be difficult to differentiate between closely related species with the material to hand. For other species, the name may be followed by "s.s." (sensu stricto) or "s.l" (sensu lato). For instance, when recording a Knapweed in a vegetative state, *Centaurea nigra* s.l. would be appropriate and covers both *nigra* and *debeauxii*.

Subspecies for Britain and Ireland are comprehensively listed on the App, but not all **Varieties**, **Formas** or **Cultivars** (particularly the last) will be on the list.

If you can provide some supporting material when recording critical taxa and taxa below species level, this will help the verifier to do their job and make the record useful to researchers and recorders who come after you. See the next section on ways of doing this.

The What (vernacular naming): this relies on your using a name that has been assigned in the BSBI Distribution Database (DDb), which follows Stace's *New Flora of the British Isles* where it can. In general synonyms are not catered for, but you will find Welsh names for some plants. As previously mentioned, there is no codified shorthand for searching a name, but you can enter any part of a name to get candidates displayed. If the list is initially too long to see in full, just keep typing more of the name.

The Who: the App will always add you (the person who registered to use it) as the first recorder in what can be a list of recorders. Remember to change this if you are entering records for someone else.

If there are several of you on a recording trip, you can add extra names with the '+' button beside the last name entered. This makes sense where there are just two or three names, but if the group was larger it is better to cut it short. If it was a formal meeting of a society or group, add its name after the names of the leaders. If it was informal, list the leader and main helper(s) and add 'et al.'

For site surveys, the recorder names are entered once for the survey, with the registered user as the default. For a set of casual records and "one-offs", the registered user becomes the default for each record.

The When: the App will default to today's date when you create a new recording session of any kind. You can change this when entering data for a recording session or a "one-off" record entry. What you cannot do is enter a range of dates for the same survey. Each date of recording, even at the same site, will need to be allocated to a separate recording event.

The Where: we have already covered this quite extensively in previous sections. Note that if you have GPS enabled and have selected the settings recommended in **Setting up**, then for surveys referencing a grid square, the App can create a new survey entry for you with the same root site name when it detects you going over the grid square boundaries. Be aware that this will not always happen, or may be a little unreliable, if the GPS precision is very low.

Supplementary information

Determiner

If you have had a plant ID checked by a more knowledgeable person such as a vice-county recorder, a BSBI referee or another authority on the plant group, you should use this entry to give others confidence in your record. If you didn't suggest a taxon name to them (or got it wrong!), you should use the '**det.**' option. If they have confirmed your original ID, use '**conf.**'.

You will find that BSBI recorders, referees and some other authorities will appear in the drop-down

list of names, so use this to find and pick a name. Only enter a name manually if the determiner does not appear in the list.

Photos

Photographic images of plants can be very useful in helping the verifier. They can also be totally useless! To ensure that yours don't fall into the latter category, please consider the following points.

- A photograph is only useful if it shows one or more of the features of a plant that are necessary to identify it. Read your field guide or Flora, and make sure you do this.
- A photograph is only useful if it's in focus. Unless you are taking a photo to show the general habit, it's best to put your hand behind the plant part, hold it still and allow the camera to frame the plant part you are targeting. You're not taking the photo for aesthetic purposes, so the fact that it's partly full of slightly fuzzy hand flesh is not a concern.
- A photograph is only useful if it's close enough for the diagnostic feature to be clearly visible. Many smartphone and tablet cameras now have a 'macro' mode but that doesn't necessarily mean that it's any good, and you may have focusing or resolution challenges when trying to use it. But if your camera has a good resolution, you often don't need an extreme close-up and will benefit from greater depth of field from a little farther away.

Although it is convenient to be able to 'snap' a plant with your recording device and instantly attach the photo to the record, sometimes this just can't provide good enough results. If you are regularly recording difficult plants, you might consider the option of taking a separate camera into the field. This doesn't have to be bulky; for instance, the OM TG-7 rugged compact camera slips into a pocket easily and has an excellent macro mode. If focal depth is proving a problem, it has both focus bracketing (where it will take a set of shots at different focal lengths for later processing) and focus stacking (where it will do the same, but then produce an image with greater focal depth from the set of bracketed shots). Both of these require you to keep the camera and subject still enough for a satisfactory result, but often ingenuity can overcome the need for a tripod.

Photos from the camera will of course need to be transferred to somewhere where the Recording App can find them so that you can attach them to your record, using the '**upload'** option. If you have a set of focus bracketed images, you will also need to post-process these to produce a single satisfactory image; don't load the whole set of bracketed images. Free apps for doing this include Canva Affinity (Windows and MacOS) and GIMP 3 (Windows, macOS and Linux, but not IOS or Android).

Status

You will notice that there is not an option in the list for 'Native'. This facility is aimed at introduced taxa or introductions of native taxa to a site, so you can leave clearly native occurrences as '**Not recorded**', but if you are not sure about its status at this site it is worth giving it an '**Unknown**' status. Unless you have evidence or firm knowledge of the means of introduction, be conservative with your assessment.

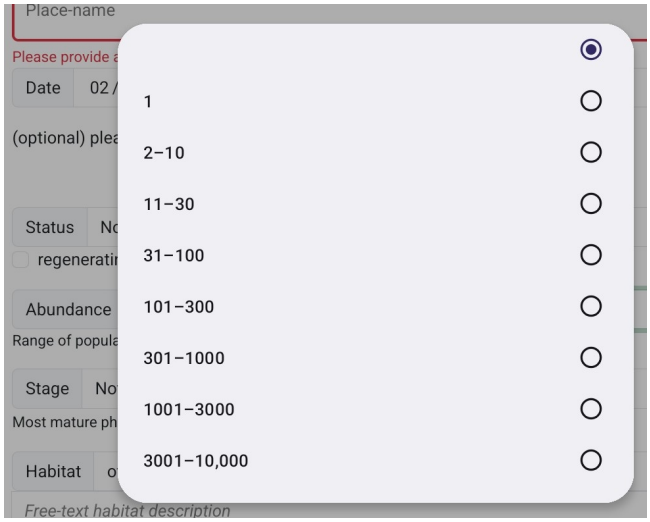
Regenerating: If it is clear that an introduced plant is spreading by seedlings / saplings, suckers,

stolons or rhizomes, tick this box.

Abundance

Here you will have either two options or five, depending on whether you are making a casual record or doing a structured survey in a defined area.

'count' is appropriate where individual plants can be discerned and can be reliably counted: beware of rhizomatous plants spawning tufts. If you want to use an exact count for something other than individual plants such as tufts or flowering stems, then a good approach is to add an '**Additional attribute**' with a name such as '**Count element**'.

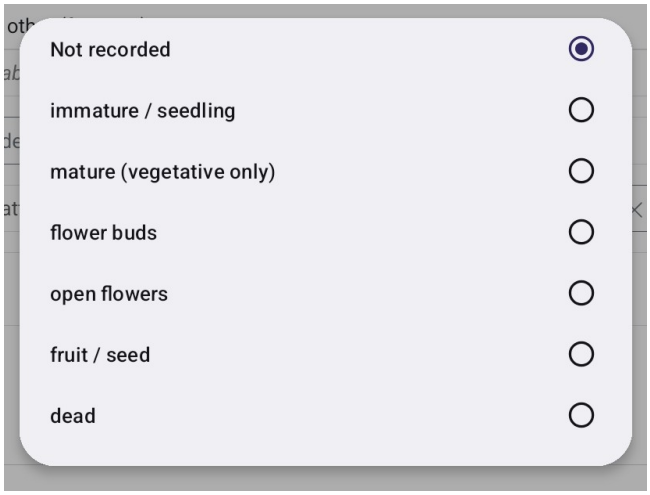


'range' is better for situations where an estimate of individuals is more feasible or needs to be less less time-consuming than a count.

'DAFOR' and 'DOMIN': these are measures of frequency in a limited sampling area such as a quadrat (or, in the case of the BSBI Threatened Plant Project, an area with a limited radius around a centroid). There are protocols for using these scales, and we assume that you will know how to apply them.

'Not found': this assumes that you are making a survey in an area where the taxon has previously been recorded, and you can't now refind it. Do not use simply to record species that you expected to find based on opinion.

Stage



If your main aim is to produce a checklist of species for a site or area, you will probably not be too concerned about recording this for common species recognisable at most stages. See the next section on when it is most useful. Of course, if you are collecting phenology information this is a necessary part of the record.

Note that the App calls for the most mature phase present, but you might use the '**Notes**' section to record other stages present.

Habitat

There are comprehensive drop-down lists for broad habitats and if you wish to record these, it is best to use the lists for consistency. Of course, you may wish to record an extraordinary and more specific habitat (for instance, a specific case of metal pollution), in which case you have the option of describing it in free text.

Attributes and Notes

These two options allow you to add other information that personalises the record for your personal research purposes, or for a recording scheme that demands it. '**Any other comments**…?' simply give you free-form text entry. **Attributes** allow you to categorise your notes under separate headings (the **'attribute name**') for more consistent, more easily retrievable data.

A few recommended examples for attribute headings are **Detailed location description**, **ID features noted** and **Anomalous features noted**.

When to add supplementary information

For many surveys such as tetrad and monad recording, or large site surveys, it is unlikely that you will want to add all the supplementary detail for every record. This section suggests when it is most appropriate to include at least some of the extra information.

A very useful paper on the subject is at https://britishandirishbotany.org/index.php/bib/article/view/28.

Rarities and threatened taxa

Nationally and locally rare and threatened plants are listed in County Rare Plant Registers, which exist for most of the counties across Britain and Ireland and are available from the BSBI web site. (https://bsbi.org/search?q=rare+plant+registers).

Your records for these taxa will be made all the more valuable if you include information on **Abundance, Stage** and **Habitat**. If they are very localised in the site you are recording, it will be worth making more than one record at least for each 100-metre square (hectare) in which you find them.

Invasive species

Known invasive species are those which are already documented to be a problem in the wild by destroying or degrading natural habitats and threatening native species, causing health hazards or disrupting essential economic activity such as farming or fisheries. A list of those currently of most concern can be found at https://bsbi.org/media/pages/take-part/activities/recording-activities/origin-regeneration-of-non-natives/f099a3b6e9-1757425066/appendix-1-invasive-non-native-species-in-britain-and-ireland.xlsx.

For these species, it is worth recording the most precise **grid reference** you can achieve, **status** and whether **regenerating**, **abundance, stage** and **habitat**. **Site photographs** and **plant photographs** can also be helpful.

Other non-native taxa

While many other non-native taxa are not currently logged as invasive and most don't deserve to be, it is worth keeping an eye out for signs of invasive behaviour when recording them. Are they displacing native vegetation? Are they regenerating vigorously? Are they spreading rapidly? How did they get there? In such cases it's worth recording all the details as for recognised invasives.

Difficult taxa and IDs that you are dubious about

You can help those who are checking your records, and researchers who use them, by including as much detail as possible that will give confidence in your ID. **Grid references** should be as precise as you can get them; include notes on the surroundings (e.g. a **Detailed location description** attribute), **Stage** and **Habitat.** See the earlier notes on **Photos** for most useful photographic data. Use **ID features noted** and **Anomalous features noted** attributes to add detail that can't be seen on the photos such as measurements of small plant parts. At the end of the day it's sometimes necessary to provide specimens to a referee for a firm determination; be aware of the law concerning what and where you can collect, and follow guidance on how to preserve and send plant material. The BSBI web site has advice: https://bsbi.org/recording/code-of-conduct?q=collecting%20guidelines.

Plants in funny places

Sometimes one comes across plants in totally unexpected places, "out of habitat". These deserve a precise **locality**, **Stage** and **Habitat** detail at least.

Sanity checking at home

When back from recording in the field, it's always worth reviewing your recording session as soon as you can. For one thing, details will still be fresh in your mind. For another, you don't control when the records leave your recording device and go to the BSBI's Distribution Database (Ddb). This happens as soon as an internet connection has been established – perhaps it was in the pub on the way home! They don't actually become public at this point, but they will be visible to verifiers. Verifiers will usually leave you a period of grace to add detail or amend your records, but it may not be that long.

Right taxon chosen?

It's not difficult to select the wrong taxon occasionally in the field, especially if you're typing shorthand names to get a search list of candidate names and recording on a small device with big (or cold) fingers, or the light is bright. It's usually easy to spot these after the event.

Recorder name(s) listed?

If you went out with others, have you acknowledged their help by including them on the recorder list?

Should there be a determiner name?

You usually won't have an expert determiner in the field with you. If the record needs it, it will take a little while to get a verdict back. You may choose to leave the **Taxon** blank so that the record

doesn’t go to the DDb until you have had an answer; or you may want a VCR to see your record (with written and / or photographic evidence, please!) with your best stab at an ID. In the latter case, add a note to the **comments** that you are awaiting a determination. Don’t forget to take the note away again when you get the determination and have updated the ID if necessary.

Does the grid reference look right?

Check at least that your record ended up in the right area: any that didn’t will be highlighted in red. Borderline cases may be acceptable, but gross errors won’t.

Location name present and correct?

Providing these details is necessary to complete the record, and gives the verifier something to check your grid references against.

Recording date present?

Again, this is a necessary detail. If you add records from notes, recording sheets or determinations after the recording event, remember to make sure you enter the correct date and not simply accept the default of today’s date.

Any unwanted duplicates?

You may not remember everything you previously recorded during a session. Having duplicates at different spots in the survey area isn’t a disaster and for rarities it’s a good idea; but if you don’t want duplicates of the common species, the best way to find them is to sort the list alphabetically. By default, they will display in reverse order of finding. To get an alphabetical list, click on the ‘**A Z**’ button (and, if necessary, deselect the ‘**#**’ button).

Using other supporting aids

GPS apps and devices

While it will still be using the same GPS hardware on your device, it is sometimes possible to get a more precise or more reliable reading, or at least a confirmation check, from other software. **Grid Reference OS** is available free on Android and IOS but only covers Great Britain; you will need its companion app **Grid Reference Free Ireland** for Ireland. On these two apps you can select the number of digits displayed for eastings/northings and the update frequency (down to 1 second). **Grid Ref UK and Ireland** covers both. **Grid Point GB** covers just Great Britain. Both have rather more sophisticated presentation including an accuracy display but are only available on IOS.

If you have a hand-held GPS device, it will give you an independent check and is likely to use more sophisticated hardware. It is worth carrying on surveys where you are working under trees, in precipitous terrain or among high buildings – or if you are finding weak GPS signals. They will display both the OS grid reference and the accuracy obtaining at the moment. Most devices (including lower-cost items like the Garmin Etrex GP10) can also show you satellite availability and usage.

Plant ID apps

There is now quite a large range of apps which claim to ID plants for you from photographs, some much better than others. If you are interested in using these visual aids, then an article *Plant identification apps – five years on* by Hamlyn Jones for the BSBI (https://webprototype.bsbi.org/media/pages/file-archive/6e37d71211-1756475405/bsbi-news-159-pp3-9-plant-id-apps.pdf) is well worth reading.

Martin Rand

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