



# So you want to know your plants...

A guide for future  
field botanists on...

- ▶ what to do
- ▶ where to go
- ▶ who to ask
- ▶ resources to use



Botanical  
Society of  
Britain &  
Ireland

# BOTANICAL FIELD SKILLS PYRAMID

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**7 Outstanding:**  
a national expert who may write monographs or review taxonomic groups.

**6 Excellent ID skills:**  
likely to be commissioned nationally for surveying a particular group. Likely to publish. Would probably keep a reference collection.

**5 Very good ID skills:**  
in one group or more – more-or-less totally reliable for a full site survey of vascular plants and would expect to identify any rare species or hybrids or take vouchers for ID. Would be expected to know about legislation and automatically have appropriate licences. Always uses scientific names.

**4 Good ID skills in one group:**  
could be commissioned to survey a site for vascular plants but may miss sub-species and hybrids. Reasonable on grasses, sedges and ferns. Member of relevant recording society. Should automatically submit records. Should use mostly scientific names.

**3 Reasonable ID skills:**  
some flowering plants, some common grasses, sedges or ferns – an improver. Should be aware of relevant national recording society. May be a member of BSBI. May submit records locally. Uses common names usually.

**2 Some ID skills:**  
can ID common flowering species, for example, but not capable of producing a comprehensive site list. No grasses, sedges or ferns, but some rushes. May have attended one or two ID courses but not familiar with collecting and refereeing of voucher specimens. Unlikely to be a member of relevant recording society although may be a member of a local recording group. Uses common names.

**1 Basic ID skills:**  
can recognize a buttercup, daisy or plantain. No grasses, sedges or ferns. May not have attended any sort of training course in identification, but intends to work/record in that area. Usually not a member of BSBI. Probably unaware that they are at this level but would like to be at one of the above levels.

**0** General populace with no current engagement in field botany



# Botanical Society of Britain & Ireland

The Botanical Society of Britain and Ireland is for everyone who is interested in the flora of Britain and Ireland. The society traces its origins back to 1836, when it was founded as the Botanical Society of London. From its earliest days it has welcomed both professional and amateur members, and it remains the biggest and most active organisation devoted to the study of botany in the Britain and Ireland.

The BSBI produces national Atlases and county Floras which describe the distribution of plants. It publishes the New Journal of Botany and holds conferences and field meetings. Members are kept informed by a BSBI News three times a year and are invited to make use of our system of county recorders and national referees who can help with the identification of plants.

The BSBI supports a wide range of botanical training initiatives, from field outings focussing on particular species groups to training course leaders, offering grants for attending identification courses and you can test your botanical field skills by taking a FISC (Field Identification Skills Certificate) at a number of centres. Scientific research on British and Irish botany is supported through grants awarded by the Science and Research panel and through the work of the Plant Unit.

[www.bsbi.org.uk](http://www.bsbi.org.uk)

This booklet was produced by the BSBI's Training and Education committee with text written by Sarah Whild, Sue Townsend, Clare O'Reilly, Peter Gateley, Brenda Harold and Alex Lockton.

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# Why learn to identify plants?

- ▶ Enjoy a walk in the countryside being able to identify most of what you see
- ▶ Lead a wildflower walk
- ▶ Carry out a plant-based project or dissertation
- ▶ Identify what is in your quadrat
- ▶ Becoming employable as a field biologist
- ▶ Carry out a Phase 1 survey
- ▶ Analyse a plant community by recording NVC quadrats
- ▶ Monitor plant populations and distributions
- ▶ Become a recorder
- ▶ Become an expert...



Whatever your motivation for wanting to learn to identify plants, there are useful stages to go through – and you can decide where you want to stop.

You may already have some expertise but if you are starting from scratch, follow the colour-coded panels on each page that correspond to the levels of the Botanical Skills Pyramid.

You can take a FISC at any point during your botanical 'training' in order to find out whereabouts you are. For levels 1 and 2, the best place to start is with the Identiplant on-line course at [www.identiplant.co.uk](http://www.identiplant.co.uk)

# Level 1

## How many plants?

There are roughly 5,500 vascular plant species in the UK so the best way to approach the daunting task of identification is to take one small step at a time.

Learning some basic plant parts  
What is a **petal**? What is a **sepal**? And what is a **tepal**?

Start off by learning the names of the basic parts of a 'regular' flower – the buttercup family is a useful family to start on. Then tackle the vegetative parts – petiole, leaf blade – and then familiarise yourself with some of the basic leaf shapes.

Can you name the weeds in your lawn (daisy, creeping buttercup, ribwort plantain) and some of the trees in your nearest wild hedgerow?

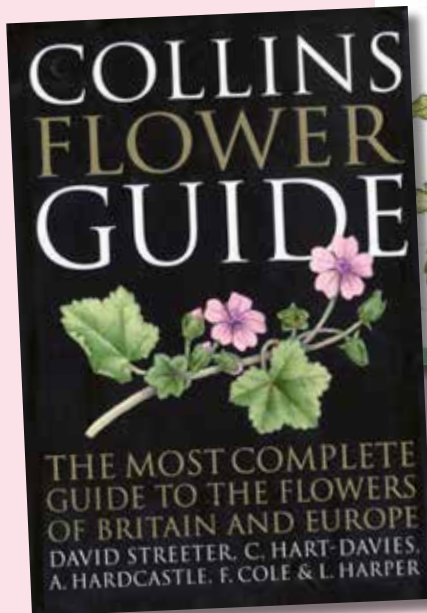
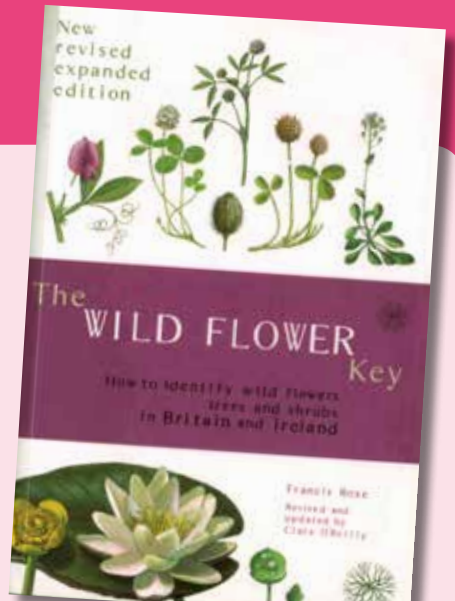
Have you got your own **hand lens**?  
Time to move on...



# Level 2

At this stage you should have a good quality colour picture field identification guide such as Rose and O'Reilly's Wild Flower Key or Collins Wild Flower guide. Make sure you choose one where the plants are ordered by family, not by season or colour (however tempting this might seem at the time, you will learn plant families more easily with a family arrangement).

Try using the BSBI on-line ID guide on the home page (Identify a Plant).



The simple aim of plant identification is to get to a species name but one of the best ways of getting there is to learn the main plant families. Pick a plant family that you are reasonably familiar with – the buttercup family is Ranunculaceae (all vascular plant families end –aceae). What is it that makes a plant a member of this family? How are the petals arranged? Learn the names and arrangement of the reproductive parts of a plant. What are the ovary, carpels, style, stigma and anthers? What is the difference between a seed and a fruit?

## Habitat based learning

Try the FSC fold-out habitat guides. Take a walk in a woodland in Spring and try to learn ten woodland plants from different families – do you see these plants in other habitats or are they ‘ancient woodland indicators’? Each time you find a plant and successfully identify it from the fold-out guide, learn the common name and the scientific name.

## Buy a picture identification guide

There are plenty from which to choose, but pick one that is arranged in ‘taxonomic order’ (water lilies and buttercups at the front, grasses at the back). Avoid guides that are arranged by flower colour or by the time of year in which the plant flowers because by using a taxonomic guide you will learn which families are closely related and which ones are not even though they may be superficially similar.

## Diagnostic features

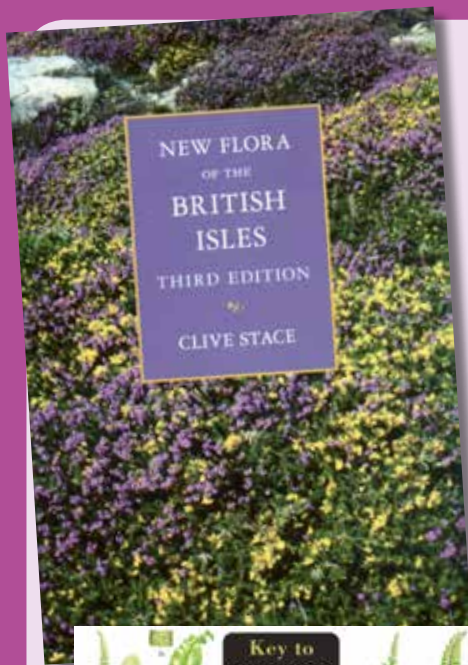
These are the features that help you to be confident that the plant you have identified IS that plant and not anything else. What are the diagnostic features that separate field buttercup, bulbous buttercup and creeping buttercup?

## Go on a short course

Try a day school first of all – it may be an introduction to botany or a day on a particular family or habitat group of plants or the top ten plant families – or do the BSBI/FSC sponsored Identiplant on-line course, designed for beginner botanists. Now tackle another family on your own – try the campion family (Caryophyllaceae) or roses (Rosaceae) or pea family (Fabaceae).

It's time to move on...

# Level 3



For Level 3 onwards, the resources that are essential include Stace's *Flora of the British Isles* – this is the first technical text that you will use – you might want to attend a course such as *Using a Flora* (Field Studies Council) to demystify some of the terminology.

It's also time to tackle some of the tricky groups such as ferns – try the Field Studies Council's fold-out guide to Ferns.

You might wish to consider buying a Grasses book such as Hubbard (published by Penguin) or the BSBI's *Grasses Handbook* by Cope and Gray (although this is rather technical) and perhaps a Grasses, Sedges and Rushes pictorial guide such as Francis Rose's guide published in 1989 or the Collins field guide to Grasses, Sedges, Rushes and Ferns.

For a habitat-based approach, try Ben Averis's book, *Plants and their Habitats*.





## Go on a longer course

Try a residential course at the Field Studies Council or other field centre.

There are courses on how to use a flora (a more technical guide to identification) or botanical keys in general – how to identify a plant family or group such as the ferns and their allies.

## Join a local group

One of the best ways of learning your plants is to go out into the field regularly with other botanists; there may be a local recording group run by the BSBI's county recorder or other keen botanists. The field outings are usually free and often other botanists are keen to help you learn new plants. You should learn how to record the plants that you see (who, what, where, when).

## How long does it take?

How serious are you? If you work at it you can become a level 4 botanist in three years and a level 5 in around five years – the general rule is, it takes 10,000 hours to become an expert. Take a FISC to find out your level.

## Tackle another habitat

Try heathland or moorland – a relatively species-poor habitat – try the moorland plants fold-out guide from the Field Studies Council.

## Getting to grips with grasses, sedges and rushes

These 'grassy' monocots are among the most difficult plants to tackle but the grasses, sedges and rushes are absolutely essential for any ecological work. The first part to tackle is to understand the differences between these three groups – they each belong to a different family so finding out the diagnostic features is important. The naming of parts is very different because of the reduced flowers – no petals or sepals in the grasses and sedges (and well-disguised in the rushes).

## Try a roadside verge

Choose a section of roadside verge that looks reasonably wild and fairly species-rich (and hasn't just been cut). Identify as many species as possible – you should be able to tackle the larger common grasses in flower and any umbellifers plus other flowering plants and possibly common ferns, such as male fern or broad buckler fern. Time to move on...

# Level 4

You will have started collecting BSBI handbooks – these will help you tackle the tricky families such as crucifers (Brassicaceae), umbellifers (Apiaceae) and docks and knotweeds (Polygonaceae).

You will also be learning your grasses, sedges, rushes and ferns at a more detailed level. You should know the differences between these three key monocot families and should be able to name the parts in the Poaceae (grass family), Cyperaceae (sedge family) and Juncaceae (rush family).

You should understand how ferns reproduce and how to tell the difference between a fern and a flowering plant. You should at least have the AIDGAP Fern guide, and probably Welsh Ferns in addition to this (not only if you live in Wales).

You should be aware of and should consider acquiring the Plant Crib by Tim Rich and Clive Jermy, and the Vegetative Key by John Poland, as identifying plants from their vegetative parts is a key part of field work.



## Variation within species

At first you will learn variation between species – what is it that makes one plant species different from another? However, one of the important aspects of becoming a very good botanist as opposed to just a reasonable one, is to learn the variation within a species. This means seeing a plant in different habitats and at different stages in its life cycle and annual cycle. How many species can you identify vegetatively rather than just in flower?

## Tackling pteridophytes

The ferns and their allies present similar problems to the grasses and other monocots with reduced flowers – the naming of parts starts all over again as the reproductive parts are very different to the flowering plants. You will also really need to understand alternation of generations to appreciate how the fern life cycle works.

## Moving on to grassland

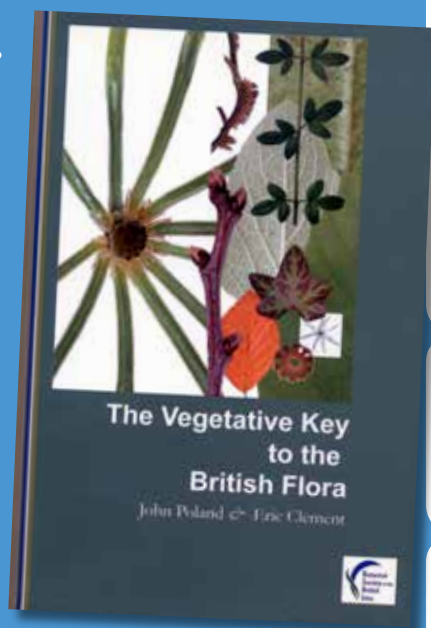
Do a grasses course – start off with a one day introduction if you have not yet really got to grips with them and then do a short residential course at the Field Studies Council.

## What are you aiming for?

You will know that you have got to a professional level when you can place a quadrat (real or imaginary) into vegetation and you can identify all of the vascular plants in it. You should be a member of the BSBI so that you can keep abreast of latest developments in plant taxonomy and ecology and also to use the referee network.

## Reminding yourself of the scope of the 'problem'

Do you know your plants now? How about sub-species, varieties and hybrids? There is still plenty to do but time to move on...



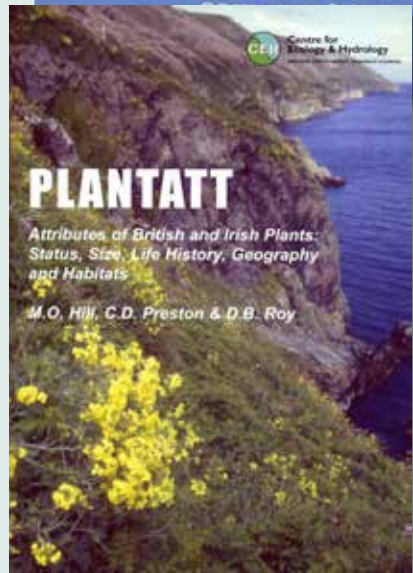
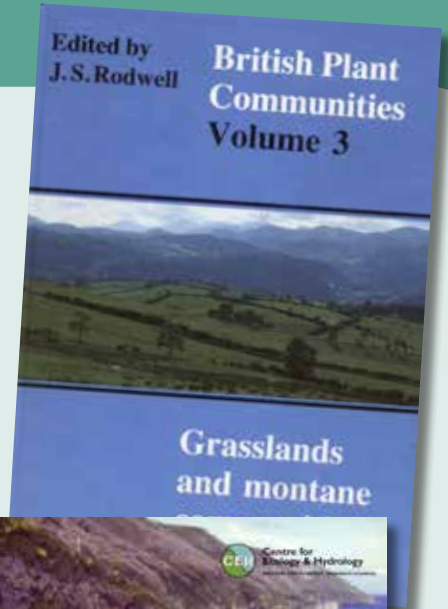
# Level 5

What usually distinguishes a very good 'county' botanist from one able to work at a national level, is the ability to transfer identification skills to other habitats. You should aim to go on BSBI field meetings in areas with which you are unfamiliar. You should be able to tackle an unknown plant using a range of strategies.

One key skill that is expected of a level 5 botanist is not just the ability to identify a wide range of vascular plants, but also to be able to produce good botanical records. There are three main types of botanical record – a site list (for either a named site or a grid square), a single species record (with a precise and accurate grid reference) and also the ability to make a sample record for a quadrat.

You will also be aware of ecological resources such as PLANTATT, and understand the National Vegetation Classification.

You may start to specialize in a habitat type and develop a reputation for excelling in identification and surveying of this particular habitat.



## How to become an expert...

The really good professional botanists do not stop learning – there will always be a new group to tackle.

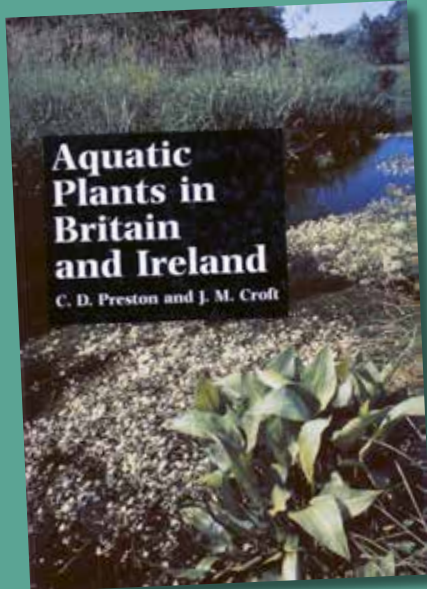
What habitats are you still uncertain about? Saltmarsh? Montane? Are there any families you are still shying away from?

The 'difficult' plants are hard to define – botanists usually list grasses, sedges, rushes and ferns as the obviously tricky ones but there are more families of really difficult plants: docks, willows, goosefoots, yellow composites, crucifers, fumitories and of course most water plants. Then there are the hybrids – which genera tend to hybridise?

Do you routinely collect voucher specimens to send to referees or for your own reference collection? Do you have a full set of BSBI handbooks (and most importantly do you use them)?

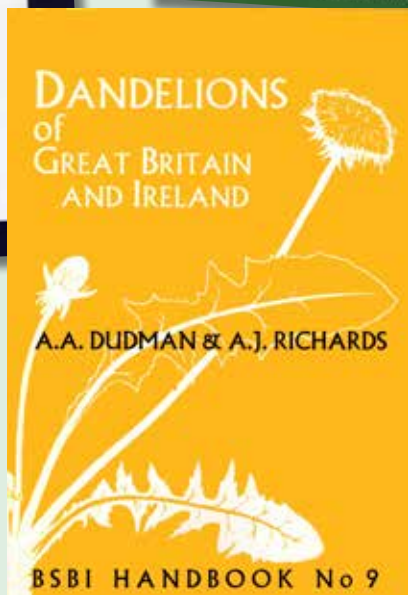
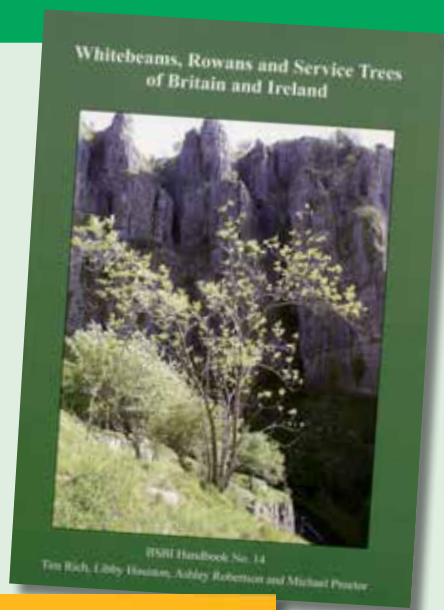
Have you considered running a field meeting or training event to pass on your identification skills?

Do you keep a database of your own records on Excel or dedicated recording software?



# Level 6 & 7

You will have a collection of handbooks for the apomictic groups such as *Sorbus*, *Taraxacum* and *Hieracium*.



## What is there left to do?

There are the critical groups such as the apomictic whitebeams, brambles, hawkweeds and dandelions, and the difficult taxa that hybridise freely such as eyebrights. There are not always referees for these groups so the usual way to tackle these is to collect vouchers for your vice-county or area and submit a collection to a referee if there is one for that group, or hold on to your collection until a new referee is appointed.

Activities at Levels 6 and 7 can include:

- ▶ Participate in BSBI conferences and other events
- ▶ Pass on knowledge to others; teach courses, submit articles to New Journal of Botany
- ▶ Present papers at BSBI conferences
- ▶ Identify gaps in local/national botanical knowledge and help plug them
- ▶ Assist vice-county recorder to learn the ropes for possibly taking on role in future
- ▶ Contribute to recording for a local flora
- ▶ Deepen studies of favoured plant group/s to qualify to act as a BSBI referee

You may consider writing a monograph on a genus, or become a BSBI referee for a particular taxonomic or habitat group.

The most important aspect of these two levels is that up to level 5 you will have been expanding your knowledge – at these levels you are deepening your knowledge of one or more specific areas.





# So you want to know your plants...

## Resources:

### Botany books and hand lenses:

- ▶ Summerfield Books
- ▶ Natural History Book Service

### On-line training and other resources:

- ▶ Identiplant



[www.bsbi.org.uk](http://www.bsbi.org.uk)

## Field courses:

- ▶ The Field Studies Council  
[www.field-studies-council.org](http://www.field-studies-council.org)
- ▶ Other organisations are listed on the Training pages of the BSBI website

## Grants:

- ▶ BSBI Training Grants
- ▶ BSBI Plant Study Grants
- ▶ BSBI Conference Grants
- ▶ Wild Flower Society bursaries (see FSC web site)