Everything you need to know about FISCs (Field Identification Skills Certificates)

This booklet was compiled by Sarah Whild and Sue Townsend, and they are grateful to everyone who provided input and comments, especially the BSBI's Skills & Training Committee, and John Martin and Alex Prendergast from Natural England.

BSBI would like to thank CIEEM, FPCR Consultancy and TEP Consultancy for their input into the development and review of FISCs.

Botanical Society of Britain & Ireland

BOTANICAL FIELD SKILLS PYRAMID

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

- This guide to Field Identification Skills (FISCs) is aimed at anyone wanting to take a FISC, and also for anyone interested in running a FISC. The first half of the guide runs through what you should expect as a candidate, with a list of Frequently Asked Questions.
- The second part of the guide provides the FISC protocols – the standards by which FISCs are set and marked, so there is full transparency for all, on how FISCs are run and what to expect.
- Does your work or your voluntary activities include field botany and plant recording?
- Do you want to quantify your plant ID skills?
- Do you know where you are on the plant ID skills ladder?
- If you want to find out more…
- …read about FISCs – the definitive field skills assessment from the BSBI.

Many ecological consultancies and statutory agencies such as Natural England recognise FISCs as an empirical assessment of your skill and your employability as a botanist. We are enormously grateful that we have been able to work with CIEEM (Chartered Institute for Ecology and Environmental Management), FPCR Consultancy and TEP Consultancy. These three organisations have been active in helping BSBI develop our protocols and review the FISCs.

What does a FISC entail? In 2006, the BSBI trialled a new system for assessing skill levels for vascular plant identification and the first FISCs were launched in 2008.

There are usually three parts to a FISC and sitting the test takes the best part of a day. There are two lab tests where a number of specimens are laid out for identification: the easier ones without books and keys, the more difficult with books and keys. After lunch there is a visit to a site where candidates record everything that they can see for roughly 1½ to 2 hours.

FISC FAQs

How much does it cost?

The FISC cost may vary from location to location, and with provider, but as an example, in 2019 it cost £75 at most centres.

When do the FISCs run?

Check bsbi.org/field-skills – there are usually several locations and the dates usually run from May to August.

Where?

In Shrewsbury, in Kent, and sometimes there are places on Natural England-run FISCs in various places in England. We are hoping to add new locations so it's always best to check the FISC page on the BSBI website for the current year's FISC locations.

How do I book?

Check on the BSBI FISC webpage and choose the centre where you wish to take a FISC – there will be a link taking you to that centre's booking form and/ or contact.

What time does it start and end?

Check with the centre that you are booked with, but you will need to set aside a whole day, with a start between 10 to 11 a.m., finishing around 5.00pm.

How many tests?

There are three separate elements to the test. There are two lab tests, the first of which is ten specimens that should be identified without using any books or keys. Then there are twenty specimens that may be identified using any books or keys, but no reference collections or on-line resources may be used.

The third test is in the field – after lunch you will spend approximately two hours surveying a small site and recording the vascular plant species.

What equipment do I bring?

A hand lens and ID books – Stace: New Flora of the British Isles plus a picture guide such as Rose: The Wild Flower Key is an appropriate combination. Some centres provide transport but do bring wet weather gear including boots/wellies, a clipboard, and possibly a grapnel (although there will be a few to share in case of aquatic plants survey sites). Bring a packed lunch and a drink, a notebook, a recording card if you are using one and be prepared for any weather for the field test.

What sort of plants will there be to identify?

A wide range from a variety of habitats. The lab test will contain species that can potentially come from anywhere in the UK but they will all be vascular plants.

How do I write the names?

Scientific names *should* be used but **unambiguous** common names can be accepted.

How high a grade will I get?

Look at the Skills Pyramid on the inside cover for a clue BUT even very good botanists don't usually score more than a level 5 – this is the highest practical level to which we can usually assess and is equivalent to what you would expect from a very competent professional field botanist, but we can detect Level 6 botanists – although they are a rare breed!

How are the tests marked?

You are given a mark for each correct identification, then each part of the test is ranked within the levels of the pyramid – all ranks for each test are then compared – if you are borderline, the number of mis-identifications in the field test are then taken into account. We give out the results after the lab tests so you can find out then how well you've done, and after the test together with your certificate, we send out a full site list for the site so you can see what was there. We compare your site marks against a botanist surveying at the same time under the same conditions (the 'gold

standard' botanist) but we also take into consideration any other species recorded that are 'reasonable' for the site. All test papers are kept by the BSBI, as in formal exams. We send you a covering letter with your certificate with generic descriptors for the level you are at, with suggestions of what to address to go to the next level but we are not able to provide individual detailed feedback for each test paper.

Will I pass?

You can't fail! The FISC test allows a skill level to be allocated to you. See the Botanical Skills Pyramid on page 2 for the Skill Levels. You are awarded a certificate stating your skill level. You may wish to come back in a few years to take the FISC again to see how you have progressed.

When will I know the results?

You can usually expect to receive an email with your results within a month, and certificates are usually sent out when all FISCs have been completed, in September.

Who runs the FISCs?

The Botanical Society of Britain and Ireland awards the FISC, and the FISC tests are run by third parties working closely with, and accredited by, BSBI, such as Kent Wildlife Trust, Field Studies Council, Arvensis Ecology, Natural England and others.

BSBI Field Identification Skills protocols for running a FISC

These protocols were first written in 2006, and were updated following a review in 2017 that included consultants, conservation agencies, CIEEM, and voluntary botanists. These are the protocols used by all centres that provide a FISC, and the protocols are provided here for transparency, so participants can see how their marks are calculated.

The BSBI Field Identification Skills Certificate (FISC) is intended to test the complete range of botanical field competencies. BSBI FISCs have so far been run in Shrewsbury, Leicester, Kent, and at a number of Natural England locations, but there have been expressions of interest to run FISCs elsewhere so these protocols are to act as a guide for anyone wishing to run a BSBI FISC.

It is important to note that FISCs should not be offered as the culmination of a taught course. FISCs are intended to test existing inherent and permanent botanical field skills so hot-housing through a course related to the FISC and/or providing coaching just prior to a FISC could invalidate the result.

FISCs must be run by someone who is an excellent botanical recorder/ecologist at or above level 5. To run a FISC you will have to be able to provide a lab/classroom and you should be prepared to provide refreshments (tea and coffee,) and be able to coordinate transport to sites (this can range from providing directions to participants travelling in cars, to hiring a minibus). Taking a test is stressful enough; it is important to provide a supportive atmosphere.

FISCs are not regional so there are no Scottish, Irish or Welsh FISCs – there are BSBI FISCs that are intended to run in different parts of the country. The lab tests must include specimens from many different regions of the UK.

There are three separate tests for a BSBI Field Identification Skills Certificate.

- Lab test of ten specimens
- Lab test of twenty specimens
- Field test lasting around two hours

NB
It is expected that FISC candidates are told of their results within a month of the test – this can be done by email, and can be a line from the Excel marking sheet with a breakdown of their scores. Certificates may take longer to issue and these will be sent out centrally, at the end of the year.

Equipment required

1. Lab/room space for the appropriate number of participants.

2. Clearly numbered labels for the specimens – these are easily printed off and laminated (this means they are wipe-clean and reusable).

3. Large plastic trays (cat litter trays are ideal!) to contain specimens.

4. It is useful to have some spare hand lenses for the participants.

5. Ten relatively common and relatively easy to identify species, i.e. species that cannot be confused with anything else. These are the first ten species for identification without any books, ID guides or other aids (see Lab test 1).

6. Twenty plant specimens already collected (or grown in pots), with a good proportion representing regions of the UK that are NOT represented by the field test location vegetation.

7. Not essential, but useful - lower power microscopes for dissection.

8. A relatively small site where the participants can record for roughly two hours, complete with owner permissions and also legal permissions if SSSIs are used.

9. A 'gold standard' surveyor who is at least level 5.

10. Risk assessment – there must be a risk assessment available for both work space and field site and there should be a nominated first aider on hand.

11. Refreshments and also coordination (or even provision) of transport to the field site should be provided.

12. If running more than one FISC per year, it is best to use different sites, and use different sites each year (or at least have a selection of sites that are used in rotation).

Lab test 1

The first lab test consists of ten specimens. These should be species that are completely uncontroversial to identify and should be reasonably widespread and common or at least very obvious (for example, Sea Holly, *Eryngium maritimum* is unlikely to be confused with anything else but is not necessarily widespread, being confined to coasts) or Daisy *Bellis perennis*. Grasses, sedges and rushes are probably best avoided unless very obvious and cannot be confused with anything else (a good example of flowering Cock's-foot *Dactylis glomerata* for example). Species such as Holly *Ilex aquifolium,* and Ivy *Hedera helix* can be included and other species should be in flower and/or fruit if possible so as to provide obvious features.

The aim of the first lab test is to provide appropriate marks for level 1-3 candidates. Candidates at levels 4-5 should get most, if not all, of lab test 1 right.

Lab test 2

Twenty different species are provided.

Material can be vegetative or flowering/fruiting/sporing but as books and keys can be used in test 2 it's worth bearing in mind that most material should be able to be keyed out. John Poland's Vegetative Key has changed this part of the test – previously vegetative material of, for example, *Stellaria nemorum* had been used but no candidates were able to identify it (even level 4 and 5 candidates) although this is a relatively easy species when flowering. At least one vegetative species should be included.

Roughly half the second test species should represent very specific regions or habitats (ie, distinctly southern, south-western, northern, montane, coastal, alpine, or saltmarsh species that do not occur in the test area. This can only practically be done by using collectors around the country. It is not sufficient to use for example coastal species that also colonise inland – they should be specifically and exclusively coastal (i.e. not just *Puccinellia distans* or *Cochlearia danica*).

To use collectors, it is advisable to recruit three or four collectors well in advance, and to check the sort of species they can collect and also how many of each species. Specimens collected a few days beforehand, sealed in a plastic freezer bag and posted in a padded envelope first class normally survive well if put in a fridge on receipt until the test (but check condition of specimens on receipt!). On past experience, Crown Vetch does not travel well, Boraginaceae wilt quickly and Geraniaceae drop their petals.

If you grow your own specimens, a species in a pot (unlabelled) is fine, but do check for horticultural varieties or sub-species if bought from a garden centre.

1. Across the two tests there should be a minimum of eight grasses, sedges and rushes, with at least one member from each family, as these families are crucial for identifying higher level candidates.

2. Ferns/horsetails/clubmosses should be included and there should be at least two over the two lab tests.

3. There should be a hybrid, or a sub-species where the sub-species is identifiable under test conditions.

4. There should be at least one true aquatic species.

5. There should be at least one non-native species.

6. There should be at least one Nationally Rare or Scarce species and the whole range of species across the two tests should not be all common and/or widespread.

7. This is probably the most difficult to specify but there should be at least one level 6 species. Less common fine-leaved pondweeds (i.e. a bit more challenging than *Potamogeton pectinatus*) are probably all level 6; hybrid sedges, hybrid willow-herbs and sedges in a vegetative state (other than *Carex hirta*) are also appropriate.

8. Allow 1.5 hours for both Lab Test 1 and Lab Test 2 – there is no need to allocate a specific time to Lab Test 1 but candidates should hand in their papers before moving on to the second lab test as they can then have access to their books and keys.

Site survey test

Around 2-3 hectares of relatively safe (i.e. in health and safety terms) habitat is required, such as limestone grassland with some scrub areas, or short fen, or not too wet sedge swamp, or broad-leaved woodland. The area to be surveyed should be made very clear to the participants – if using a small area within a larger

reserve, it should be fenced or taped off clearly. It should be made clear whether or not hedges are to be surveyed – it is advised that boundary hedges are generally excluded from the surveys with just species growing within but not on the boundary to be recorded.

A relatively small more or less homogeneous site with fairly distinct boundaries is required. Points to consider include:

- Small enough to survey thoroughly within two hours
- Large enough for individual surveys to be carried out and for 'invigilation' to be effective.
- You will require a level 5 (at least) 'gold standard' surveyor, who records alongside the candidates for the same length of time. The list generated by the level 5 surveyor is used to compare against the candidates' list.

Marking

A spreadsheet is provided, and scores can be entered against the candidate's code, with the FISC level for each part of the test being calculated automatically.

Lab test 1

- Mark out of 10.
- One mark for every correct and completely unambiguous answer. Answers can be scientific names or common names but must be completely unambiguous.
- Half marks can be awarded for a correct genus name or ambiguous but partly correct common name but don't round up when awarding levels.

Examples:

1. The specimen is *Leucanthemum vulgare.* One mark is given for *Leucanthemum vulgare.* One mark is given for Ox-eye Daisy.
2. If spelling is a bit off, but still understandable, then award a full mark IN THE FIRST LAB TEST (not in the second when resources are allowed for checking spelling).
3. Half a mark is given in the unlikely event of *Leucanthemum* being the only answer given (or, for example *Leucanthemum superbum* being the answer.
4. Half a mark for Daisy.
5. Total up the marks and allocate a level.

Lab test 1

Level	Score
5	9+
4	7,8
3	5,6
2	3,4
1	1,2

Lab test 2

As above, but spelling should be accurate as resources can be used (although the odd spelling mistake as long as still completely unambiguous is not an issue.).

Total up the marks and allocate a level.

Lab test 2

Level	Score
5	16+
4	13-15
3	9-12
2	5-8
1	1-4

Marking the site survey

This is the most difficult part of the FISC to mark and it generates two separate marks.

Let's assume for simplicity that the 'gold standard' surveyor records 100 species. This then makes a level 5 pass for this section 70 species (70%) of the gold standard's total. Genus names can score a half mark ONLY if for example *Carex* sp. is written once(if there are three sedges on the site, three instances of *Carex* sp. does not get one and a half marks). Unambiguous scientific OR common names are acceptable.

Site test

Level	Score
5	70+
4	55 - 69
3	40 - 54
2	20 - 39
1	<20

False-positives

This is arguably the hardest part of the marking. Every species that is recorded in the site survey **but does not appear on the 'gold standard' surveyor's list** should be scrutinised carefully. This is where it is very useful to have a full list of previous records for the site because it is possible that a level 5 candidate will see something that the 'gold standard' misses. A reasonable description of a false-positive is where there has been a blatant guess or hedging of bets.

Examples of false-positives include:

1. *Carex* sp. if a *Carex* has been recorded to species already and there is only one on the site.
2. *Stellaria palustris* is a common unreasonable in many areas. It has declined rapidly throughout the country, is much rarer than records suggest and is often put down because a *Stellaria* is seen in a fenny site.
3. If for example *Carex acutiformis* is present on the site and both *C. acutiformis* and *riparia* are recorded, *riparia* is a false-positive.

False-positives

5	5 or <5
4	6
3	7-8
2	9-11
1	12+

Totalling up the scores to allocate levels

You should now have four levels for each candidate. Total the levels and divide by 4 – don't round up – the whole number will be their level.

Example:
If a candidate scores 5 in test 1, 4 in test 2, 5 in field test and 4 in false-positives, their total is 18 – divide by 4 which gives 4.5 therefore they are level 4.

How to detect a level 6

Level 6 candidates are VERY RARE so do not expect to find one – they are botanists usually operating at a national level. They will have scored 10 in test 1, at least 18 in test 2 and they will have scored the same or more than the 'gold standard' in the field test. They will have a false-positives score of 0 or 1.

How to detect a level 7

It isn't certain that level 7s can be differentiated from level 6, but they would need perfect scores in the lab tests, no false-positives, and more in the field test than the gold standard.

Useful bits for running a FISC

- BSBI may be able to provide some printed material for your candidates, e.g. the Code of Conduct, a recording … email fiscertificates@gmail.com for more details.

- Pre-test talk to candidates:

"The FISC takes place under exam conditions.

Fire exits are here, loos are over there and Joe Bloggs is a trained first aider. Lunch is at this time and at this time you must meet at this place for transport to the field site.

Before we start, assign your level (what you think you are) on the left-hand side of the Skills Pyramid – you will re-assess yourself at the end of the test.

During all tests please switch off mobile phones and other electronic resources – they must not be used in any way during any part of the tests.

In test 1 there are no books or keys allowed and no electronic resources. These are relatively straight forward specimens and you can write what they are using scientific or common names. If you need to take a specimen back to your desk and there is insufficient material in the tray, move on to the next specimen.
Hand in your paper before you commence with test 2.

In test 2 you can use books and keys but no reference collections and no electronic resources. There are 20 specimens and these will be more difficult than test 1 but don't panic – do what you can then move on to the more difficult specimens and if in doubt, do write the genus even if you don't know the species.

There is 1 point for each correct answer and half for a correct genus.
In the field test, only write what you are sure of as we count wrong answers including obvious guesses and species we know are absent from the site as 'false-positives' - these can count against you.

Any questions before we start?"

- Before the field test:
    - Health and safety talk
    - Boundaries of the FISC site
    - Phones and other devices off

    - Timing – for example a whistle will be blown once ten minutes before the end of surveying, and twice at the end

- Feedback to candidates:

The standard feedback letter is below:

Dear

Field Identification Skills Certificate

Please find enclosed your certificate awarded by the Botanical Society of Britain and Ireland.

You have been awarded a FISC at Level X and the descriptor for this level is included on the certificate.

To progress to level X, or higher, please download and read So You Want to Know Your Plants from the BSBI website..

The BSBI website has a list of providers of training courses on plant family groups and also on particular habitats and the BSBI offers training grants towards some of these courses. I should like to suggest that you return in two years to take another FISC to reassess your identification level.

May I take this opportunity to wish you good luck with all future botanical endeavours.

With all good wishes

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