Investing in the Benefits of Rewilding

Biodiversity Credits: An Emerging Market to Restore Nature

Green Bonds: Financing Nature's Recovery

The TNFD Framework and Implications for Ecological Advocacy

Financing Nature's Recovery

What FISC is and is Not!

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The ability to accurately identify plants is a rare skill. For example, visitors to urban greenspaces in the UK can, on average, correctly identify only one in four plant species common to that area (Dallimer *et al*. 2012). Even students studying biology struggle. A study testing nearly 800 advanced-level biology students in the UK found that the vast majority (86%) could not name more than three common wildflowers (Bebbington 2005). Botany teaching on university courses has been in decline for decades (Drea 2011), and recent research indicates that only 10% of modules offered in biology degrees by Russell Group universities in the UK have any significant emphasis on plant identification (Stroud *et al.* 2022). Hence, few graduates complete an ecology degree course with any significant plant ID skills.

The correct identification of a plant species plays an important role in biodiversity conservation and is an essential skill for vegetation surveys and habitat condition assessments. This is even more so in light of recent changes in environmental legislation in the UK, resulting in the increasing use of the relatively new UKHab survey methodology (largely replacing the somewhat simpler Phase 1 habitat survey) and introduction of Biodiversity Net Gain (BNG).

A CIEEM member survey published in the December 2018 issue of *In Practice* found that 52% of the 900 professional ecology respondents described their competence in vascular plant ID to be at an intermediate level, broadly equivalent to Level 4 on the Botanical Society of Britain and Ireland (BSBI)'s Botanical Skills Ladder (Figure 1). This means that

BOTANICAL SKILLS LADDER

Professional and voluntary opportunities

Level 5 and above:
- Teach a professional level plant ID course
- Become a FISC Assessor or Gold Standard Surveyor
- Be commissioned to undertake botanical surveys nationally for a particular group

Level 4 and above:
- Become an Identiplant Tutor
- Teach vocational courses
- Undertake NVC or IVC surveys as part of consultancy work
- Take part in the NPMS in the UK at Indicator or Inventory Level

Level 3 and above:
- Undertake botanical surveys such as UKHab Phase 1 or Fossitt habitat surveys as part of consultancy work

Level 2 and above:
- Lead a local informal botany walk
- Take part in the NPMS in the UK at Wildflower Level

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7 Outstanding ID Skills
A national expert with a comprehensive knowledge of the British and Irish flora, involved in writing monographs or reviewing taxonomic groups.

6 Excellent ID Skills
Expected to have a comprehensive knowledge of the British and Irish flora and able to record more than 90% of all taxa present on a site, including critical taxa.

5 Very Good ID Skills
Able to identify most widespread vascular species in flower or vegetatively, including species of grasses, rushes and sedges, most rare species and common sub-species and hybrids, and likely to have broad experience of species and habitats nationally. Expected to record at least 70% of all taxa present at a site, and able to use vegetative keys accurately.

4 Good ID Skills
Able to identify most widespread vascular plants including grasses, rushes, sedges and ferns and actively working to improve their identification skills for more challenging groups. Able to survey a site for vascular plants professionally, but may miss sub-species and hybrids.

3 Reasonable ID Skills
Able to identify many common and widespread flowering plants, including some common grasses and sedges, and able to identify common ferns. Not yet capable of producing a comprehensive site list. Aware of key plants used as indicators for specific habitats e.g. Yellow Archangel or Woodruff being ancient woodland indicators.

2 Modest ID Skills
Able to identify some common flowering species, although may only be able to identify a few distinctive common grasses and sedges. Unlikely to be able to identify many ferns. Has some skills enabling the use of field ID keys to identify less common species.

1 Basic ID Skills
Able to recognise a few common and widespread flowering plant species or genera such as a buttercup or daisy. Unlikely to be able to identify many grasses, sedges or ferns. Can use a simple key to identify some common species.

Additional knowledge or activities likely to have or engage in

Level 5 and above:
- May provide training and advice to others on species ID
- Up to date on relevant legislation related to plant collection and protected and invasive species
- May publish botanical ID guides
- Consults a reference collection
- Engages with BSBI referee network to submit reliable records

Level 4 and above:
- Likely to make regular use of more advanced texts such as Stace's Flora to help identify less common species
- Likely to submit records to BSBI County Recorders and to use scientific names

Level 3 and above:
- Likely to make regular use of field ID keys
- Starting to use more advanced texts such as Stace's Flora
- May have started submitting records of common species to BSBI County Recorders

Level 2 and above:
- May have attended a few ID training courses
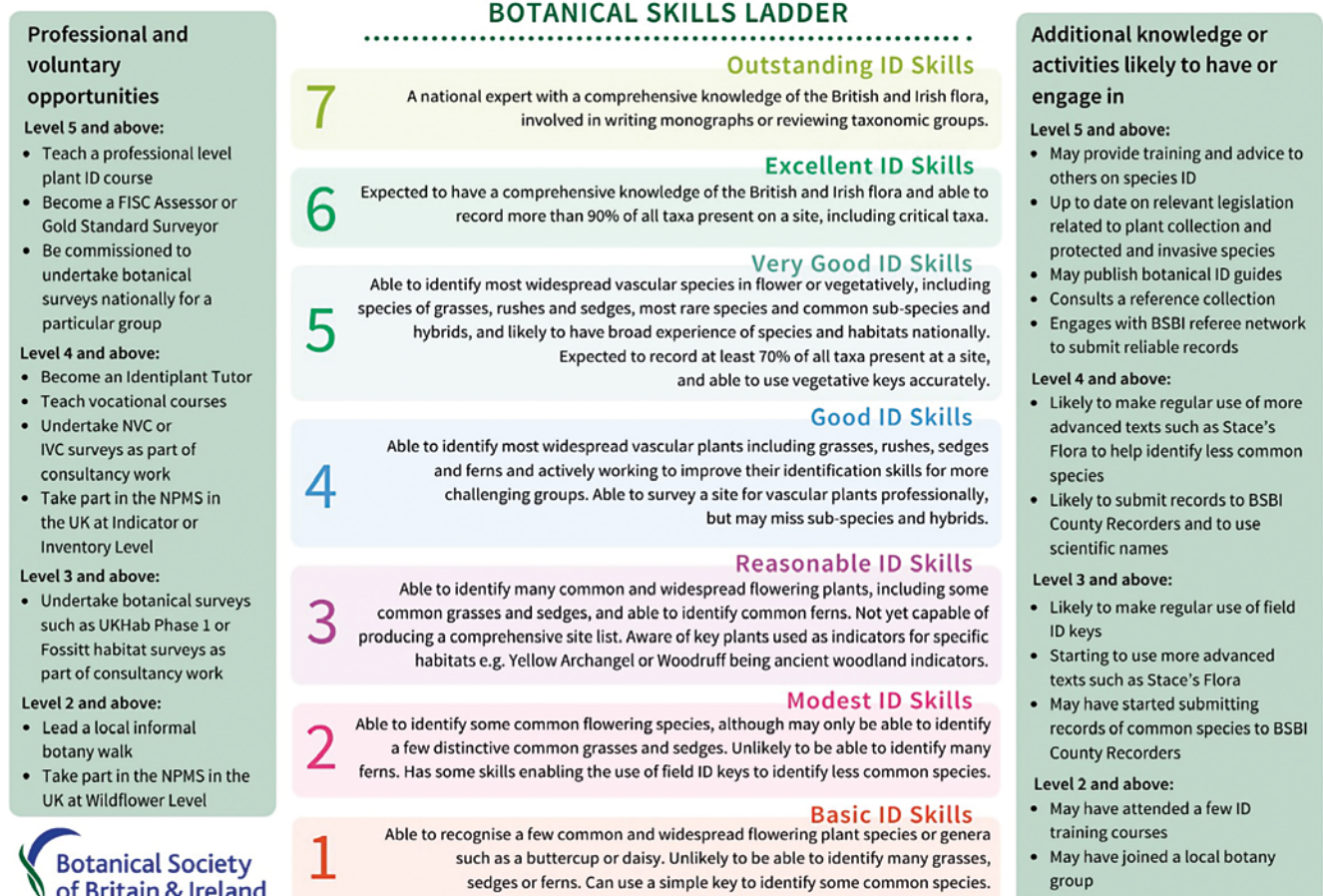- May have joined a local botany group

Figure 1. BSBI Botanical Skills Ladder overview. An updated version of this infographic will be published on the BSBI website (bsbi.org) soon.

they should be able to identify most widespread vascular plants including grasses, sedges, rushes and ferns and hence be able to survey a site professionally, although they may miss subspecies and hybrids. Just over 25% of the survey respondents indicated that their plant ID skills were at a basic level, more equivalent to Level 2 on the Botanical Skills Ladder.

There is a substantial difference between defining broad skill levels against which someone may self-assess (which is what the Botanical Skills Ladder is designed to do), and rigorously testing the ability to identify plant species in the field, which is what the Field Identification Skills Certificate (FISC), is designed to do, with associated detailed protocols and Quality Assurance.

The FISC scheme has been running since 2007 and is awarded by the BSBI and promoted on the website (https:// bsbi.org/field-skills). Originally developed by Sarah Whild and Sue Dancey, the BSBI's FISC Development Working Group (including a number of experienced FISC Assessors) now supports and oversees the running and Quality Assurance of FISC. Each FISC is run by a FISC Assessor who needs to be at Level 5 or above, meaning that they are able to identify most widespread vascular plants in flower or vegetatively, including sedges, rushes, ferns and grasses, most rare species and common subspecies and hybrids.

A FISC comprises a 1 day test which results in a score of the participant's ability to identify British and Irish vascular plants. Participants are awarded a Level from 1 (beginner) to 5 (professional) with a 6 awarded in exceptional cases. An award of Level 4 is considered to be the minimum level for consultants undertaking professional plant surveys such as NVC. FISC is fast becoming an industry standard for plant ID skills, with several environmental consultancies and Natural England using FISC as a metric for determining botanical field ability and rewarding progress.

To date, more than 1500 individuals have taken a FISC assessment with the majority being awarded a Level 3 certificate, meaning that they are able to identify common and widespread flowering plants including a few easy-to-identify grasses, sedges and also a few common ferns. A large proportion of individuals undertaking a FISC are ecological consultants and this proportion has been increasing in recent years.

An article in the December 2019 issue of *In Practice* entitled Plants in practice (Hutchinson *et al.* 2019) highlighted the critical importance of plants in professional ecology and lamented the fact that the importance of botanical skills (relative to those for various animals, for example bats) was not being sufficiently reflected in professional practice. The authors felt that low levels of botanical competence led to undervaluing of, and loss or damage to, plant populations and habitats. They proposed the development of effective guidelines and best practice training tools to nurture a new generation of suitably qualified field botanists.

For many ecologists, a protected species licence is a sought after goal, but according to the authors of the 2019 *In Practice* article, the same could not be said for demonstrating competency in plant identification and habitat survey.

Things have improved since then. CIEEM contributed to the 2017 review of FISC, and it has gained in popularity, with demand outstripping supply in the last few years. At the time of writing, an FISC was listed as a desirable or essential criterion on 13 ecologist job vacancies posted on Indeed, and recognised by statutory agencies such as Natural England as an empirical assessment of skill and employability for botanists. CIEEM makes reference to FISC in the Competency Standard for Preliminary Habitat Survey, where a basic standard of species identification may be demonstrated by FISC Level 2 or 3, a capable standard by FISC Level 3 or 4, and an accomplished standard by Level 4 or 5.

Increasingly, employers and contracting organisations are specifying the need for candidates to have a FISC Level 4 or 5. There are also examples of organisations requiring ecologists to have a FISC in order to complete BNG metric assessments; for example, a quick Google search shows technical advice notes from several government bodies requiring an FISC (e.g. "a suitably qualified ecologist who has achieved FISC Level 3 or above will need to be appointed to carry out the biodiversity metric assessment"; Sheffield City Council, Sept 2023).

Although it is fantastic news that progress has been made in recognising the importance of an objective and standardised assessment for plant identification skills like FISC, current capacity limitations in the form of qualified and approved FISC Assessors means that meeting the increasing demand for FISCs is a challenge, not least of all due to the requirement for FISC Assessors to have achieved a FISC Level 5 during a recent FISC, with an approved FISC Provider. In addition, to run an FISC a separate Gold Standard Surveyor (GSS) is also required, being someone at or above Level 5 on the Botanical Skills Ladder.

BSBI is working hard to recruit and retain FISC Assessors and GSS to build capacity to meet demand. Since 2022, 13 new FISC Assessors have been recruited and trained to deliver FISCs, resulting in almost 400 candidates undertaking an FISC in 2023, the highest number yet. New and extended partnerships with Natural England, various Wildlife Trusts, consultancies and the Field Studies Council will enable more FISCs to be run in the near future in as many regions as possible.

While it is extremely important to encourage the development of botanical skills and FISC is a recognised measure of competence in plant species ID, mandating that only FISC-qualified botanists can complete BNG metric assessments or other habitat assessments will severely restrict the pool of suitably competent ecologists, both because FISC is a relatively new scheme, with just over 1500 people currently holding an FISC certificate, mostly at Level 3, and because the skills shortage in botany extends to the availability of experienced FISC Assessors able to run FISCs.

It is also important to recognise, as noted in the article by Richard Gowing (WSP) in the June 2019 issue of *In Practice* on Better biodiversity accounting, that FISC *is* an independently validated measure of competence in plant species ID, but *is not* evidence of surveyor competence in

habitat classification, for which a comparable standard does not exist and is, according to the author, also required.

Until FISC supply can meet demand, employers and contracting organisations are encouraged to also make use of BSBI's Botanical Skills Ladder to define the plant ID skills necessary for a particular role. They need to be cognisant of the fact that having an FISC at Level 4 means that the individual has the requisite plant ID skills to undertake professional vegetation surveys, but does not necessarily mean that they have experience or competence to undertake them, as additional skills are also required.

In order to make further gains in improving the recognition of the critical importance of plants in professional ecology relevant to FISCs, we recommend the following:

- increased recognition of the FISC Assessor role across the sector so as to encourage more individuals at FISC Level 5 to become Assessors and deliver FISCs

- increasing the profile of the FISC Quality Assurance process and its importance in ensuring that FISCs are seen as robust and effective assessments of botanical field ID skills

- encouraging more people to work towards moving up the Botanical Skills Ladder, especially to Level 5, in order to increase capacity for the delivery of FISCs by suitably qualified individuals. This requires the development and promotion of training programmes to support this

- raising awareness, particularly among those employing and contracting ecologists, of where FISC is and is not an appropriate requirement.

For an ecologist, could having a good FISC soon become as important as the much sought-after protected species licences? If so, botanical education will need substantial investment over the next few decades to address the historical slow decline in plant ID skills and to train the next generation of suitably qualified field botanists. We will

work closely with CIEEM and BSBI members to help develop and expand appropriate botanical training, continue to increase FISC capacity, and to take the above recommendations forward.

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