

Recording the British and Irish flora 2010-2020

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The BSBI is the leading charitable voluntary organisation promoting the study and enjoyment of British and Irish flowering plants and stoneworts (vascular plants and charophytes). From its inception in 1836 it has welcomed both professional and amateur members. It aims to improve the understanding of British and Irish plants and to support and encourage research and conservation. We welcome all interested botanists.

For further information or more copies of this booklet please see the BSBI website www.bsbi.org.uk or contact Kevin Walker, 97 Dragon Parade, Harrogate HG1 5DG kevinwalker@bsbi.org.uk

Cover photo: Upper Wharfedale, Mid-west Yorkshire (v.c.64)
Photo: Kevin Walker (BSBI)

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Introduction

This booklet fulfils the need identified in the Botanical Society of the British Isles' 2006 Development Plan for the Society to have a medium to long term programme for its recording, surveillance and monitoring activities. This is important not only for steering the Society's future activities, including the development of its Plant Unit, but also to attract future funding and prepare for a third Atlas of the British and Irish flora due for publication around 2024. It sets out briefly the Society's current work in the context of the potential use of its data and information and defines planned future work.

This booklet has been produced by the BSBI Plant Unit under guidance from the BSBI Records Committee and in consultation with BSBI vice-county recorders. It was approved by BSBI Council in March 2010. Supporting guidelines and resources available to recorders are highlighted in **bold** in the text and listed separately in the Annex on page 19.

Overall aim of this booklet

To share with vice-county recorders (VCRs), other volunteers and partners clear guidelines for plant recording in Britain and Ireland over the period 2010-2020, taking into account the scale, methods and coverage of recording needed to meet the Society's objectives.

More specifically:

- To provide recorders with a clear timescale and programme for recording activities that allows local activities to be planned around national initiatives
- To provide guidance on the BSBI's preferred approaches to recording (which will be reflected in the amended BSBI guidelines and the supporting material highlighted throughout the paper – see Annex, p.19)
- To plan the rationalisation of data handling, mobilisation and provision both internally and externally



Figure 1. BSBI volunteers cover a range of botanical abilities, expertise, interests and ages but all enjoy recording plants in 'wild' places. Photo: Jim McIntosh

Setting the scene: BSBI recording in 2010

Reasons for recording

- To map the distribution of species at a variety of scales
- To measure changes in distribution and abundance
- **To discover and test the validity of any 'new' taxa including aliens, microspecies, hybrids, and infraspecific taxa**
- To improve our knowledge and understanding of the ecology and habitats of species
- To inform the conservation of the British and Irish flora
- For the fun of it and to improve and share our identification skills

Who uses our records and why are they so important?

- Conservation agencies and government departments use our data to inform conservation activities such as the production of lists of 'priority species' such as the Red Data List (Cheffings & Farrell, 2005), improved targeting of agri-environment schemes and informing policy on non-natives
- Government agencies such as the Forestry Commission and local authorities use our data to inform the planning process and for land management
- The scientific community use our data for research leading to an increased understanding of the British and Irish flora
- Our data are made available to the general public via our publications such as the *New Atlas of the British and Irish flora*, the BSBI Website and National Biodiversity Network (NBN) Gateway. This stimulates interest in botany amongst our members and more widely and identifies the BSBI as the leading provider of high quality botanical information in Britain and Ireland.

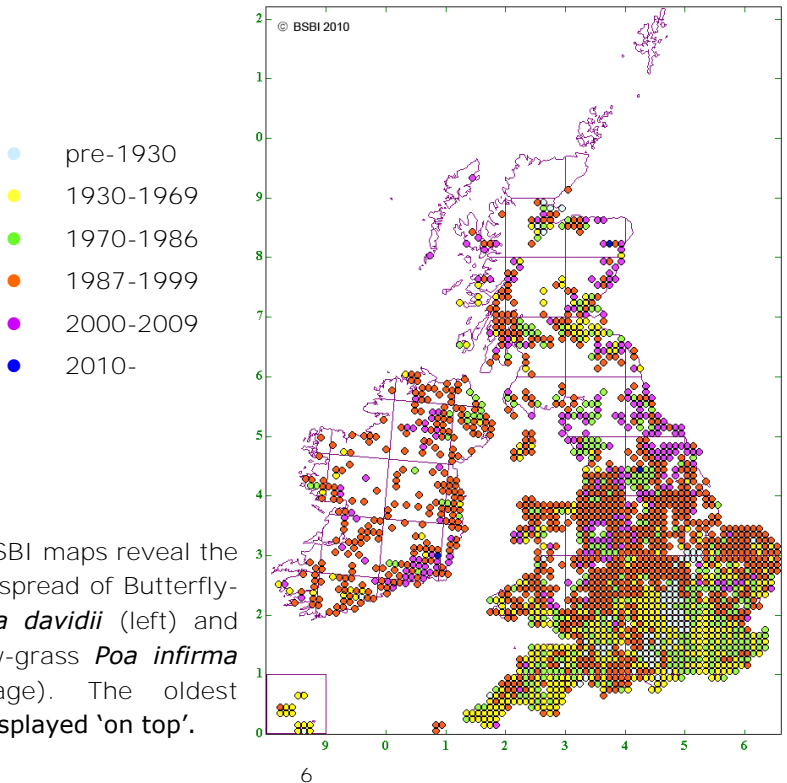
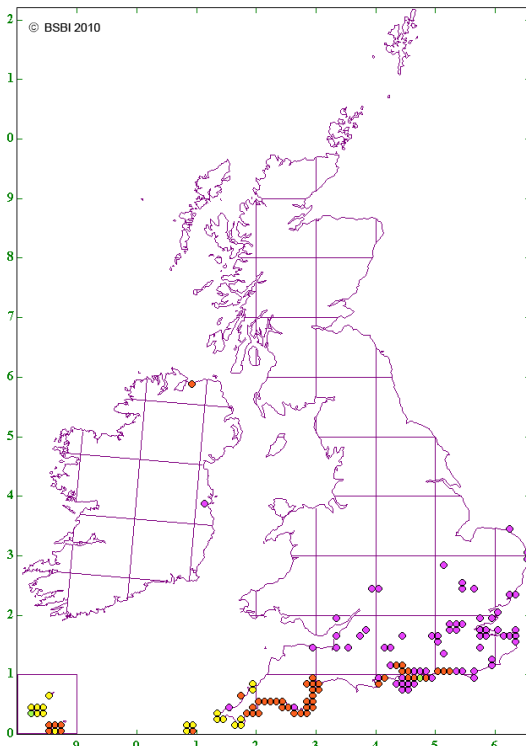


Figure 2. BSBI maps reveal the extent of the spread of Butterfly-bush *Buddleja davidii* (left) and Early Meadow-grass *Poa infirma* (opposite page). The oldest records are displayed 'on top'.

Current recording projects

- Recording, either systematic or *ad hoc*, and at a variety of scales (e.g. hectad, tetrad, monad, site, population), underpinned by clear guidance on the sampling approaches that should be used - **Annex I**
- The production of inventories of rare species for vice-counties (County Rare Plant Registers), available as publications and/or on-line - **Annex II**
- The selection of indicators of good quality habitat (axiophytes) in each vice-county - **Annex III**
- **Monitoring, mainly targeted surveys of 'priority' species** (Site Condition Monitoring, Threatened Plants Project, etc.)
- Surveillance (as distinct from monitoring); currently Monitoring Scheme/Local Change but with possibility of a complementary UK plant surveillance scheme in the near future - **Annex IV**
- Individual site studies and surveys

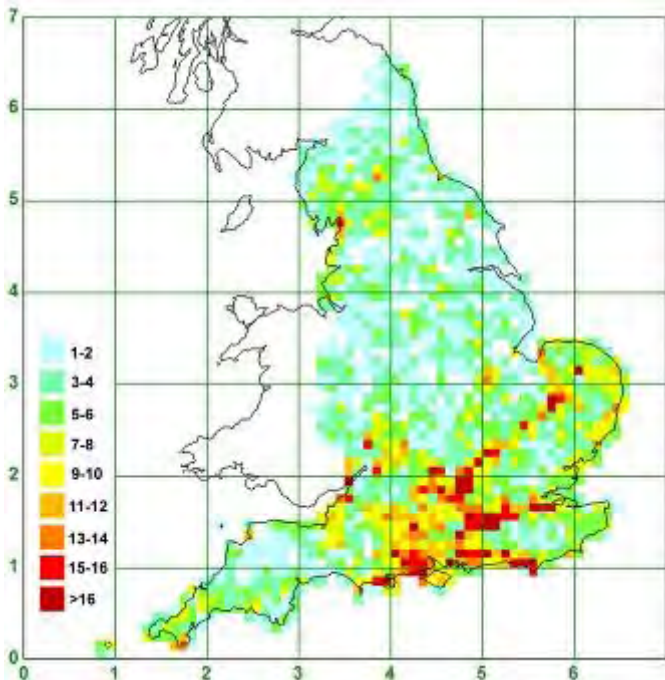


- Maintaining an up to date list of taxa for each vice-county (Vice-County Census Catalogue) - **Annex V**
- Maintaining an up to date list of the statuses of taxa in each vice-county - **Annex VI**
- Species accounts available via the BSBI Website, incorporating as much ancillary information as possible
- The production of local (county) floras and checklists

Constraints to recording and some plans to mitigate these

- Lack of volunteers, either real or through limited time, skill or willingness to enthuse others (including successors)
- Lack of expertise in recording methods and/or taxonomy/identification
- Size of vice-county, especially where the terrain makes recording difficult or there are access restrictions
- Lack of central support for our volunteers
- Lack of expertise with computer recording software (e.g. MapMate, Recorder)
- Differences in accepted taxonomy for taxa in recent works
- Problems with recording planted species, native or alien

Figure 3. Coincidence map showing the number of UK Biodiversity Action Plan (BAP) species recorded in English hectads since 1987. The concentration of species on free-draining acid and calcareous soils in the southeast is clear.



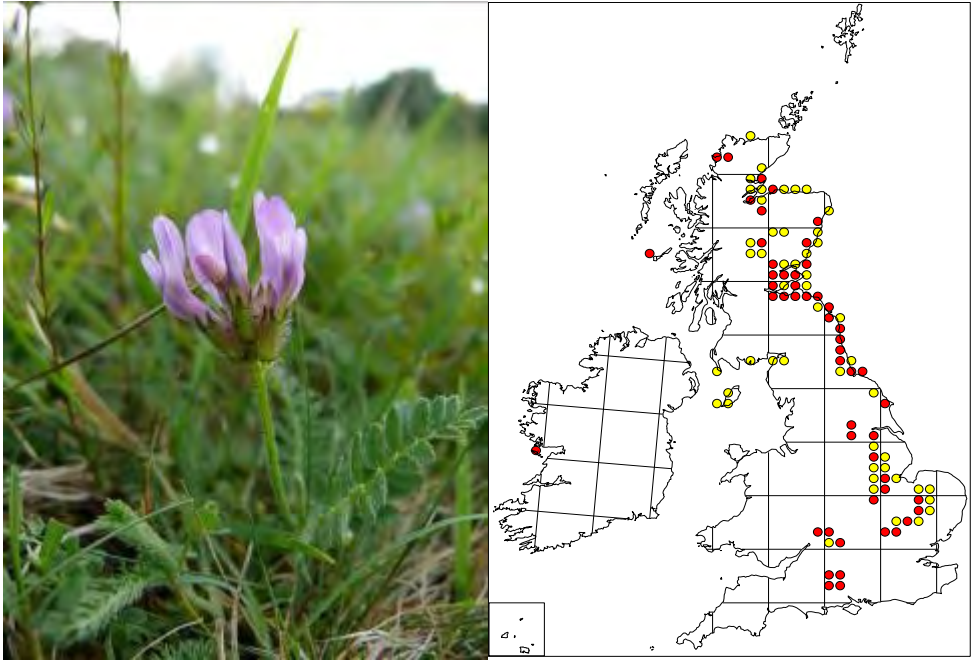


Figure 4. Purple Milk-vetch *Astragalus danicus*: a 'threatened' (Red List) species surveyed by BSBI recorders in 2008. The distribution map shows 20 × 20 km squares in which populations were surveyed (red) against its current (post-1987) distribution (yellow). Photo: Kevin Walker.

Recording difficult taxa

The BSBI will make available a comprehensive checklist, combining all taxa included in recent major works (e.g. Sell & Murrell 1996 *et seq.*; Cope & Gray 2009; Stace 2010) and how they relate to each other - **Annex VII**. BSBI Records Committee will recommend the preferred taxonomy (at the moment, Stace Third Edition as default, but other choices may be needed, especially for taxa it does not include). This checklist will aim to be comprehensive and therefore cover the following difficult taxa, from a recorder's perspective, for which recording guidelines will be made available - **Annex VIII**:

- Intraspecific taxa
- Microspecies
- Hybrids
- Aliens and planted trees, especially native 'look-alikes'



Figure 5. (Above, left) A recent name change: White Sedge *Carex canescens* formerly *Carex curta*. Photo Kevin Walker.

Figure 6. (Above, right) *New Atlas* distribution map of European Silver-fir *Abies alba* showing extensive recording from some vice-counties, but not from

Species that have been planted in the 'wild' have traditionally been ignored by botanists, but current fashion is to at least record the most widespread. Guidelines on how to record the following groups will be produced in due course - **Annex IX**:

- Planted native or alien species
- Planted trees and shrubs that are regenerating
- Planted field crops and sown wildflower mixes
- Rarer planted aliens, mainly trees and shrubs

Figure 7. (Right) Corn Marigold *Glebionis segetum* (formerly *Chrysanthemum segetum*) in an arable field margin in Essex. The distribution of this and other arable species has been obscured by recent plantings. Photo: Peter Nuttall

BSBI recording projects and priorities, 2010-2020

National projects

Between 2010 and 2020 our aim is to complete the following:

- Comprehensive update of hectads in the period 2000-2019, in preparation for a third Atlas of the British and Irish flora planned for around 2024
- A second repeat of the Monitoring Scheme planned for 2019-20, with a possible complementary UK plant surveillance scheme, combining Local Change squares, planned from 2012 onwards
- Targeted monitoring of threatened plants (Threatened Plants Project) to run till 2012 inclusive
- County Rare Plant Registers; all vice-counties to have produced at least a draft by 2019
- Production of county axiophyte lists for all counties by 2019
- Updating of vice-county lists held within the Vice-County Census Catalogue



Updating hectads, 2000-2019

A key requirement is that all VCs should move now (2010) to an ongoing recording programme to achieve at least sample coverage within **all hectads** in their vice-county between 2000 and 2019 (i.e. in preparation for the third Atlas of the British and Irish flora). In most counties in England and Wales this will be achieved through ongoing flora projects at higher resolution (i.e. tetrad or monad) and should provide at least tetrad coverage for rarer species by the time of the third Atlas. A sampling approach within hectads will be more suitable for remote counties with few recorders. Here recording should match the people available, and **as a minimum prioritise 'good' sites and sample the full range of habitats present in each hectad.**

BSBI will issue guidance on how to achieve this, including possible sampling approaches - **Annex I** - and their effects, and what support the Society can give, for instance through volunteer survey teams in remote areas. The guidance will focus on approaches to:

- **Ad hoc** recording in each hectad to maximise coverage
- Sampling within hectads, using tetrads and monads, including systematic/random selection or through prioritisation of the richest squares
- Sampling within hectads using sites, habitats and species

Figure 8. Recording in mountainous terrain can be arduous and is probably best achieved by sub-sampling. The Rum Cuillins Photo: Kevin Walker.



Resolution of recording

- All recording to be carried out at tetrad resolution or higher (including Scotland and Ireland), linked to the sampling approaches outlined above. This could include recording at site level, aggregated to tetrad, although this would miss wider countryside species.
- Recording presence at the 5 × 5 km (pentads, quadrants) and hectad resolution should be avoided although both could be used for designing sampling approaches to collect information at finer resolution.
- Recording for all nationally and county rare and scarce and all UK priority species (e.g. UKBAP, Red List) to be undertaken at least at 100 m resolution - i.e. six figure grid reference. A full list of UK Priority Species is currently available on the BSBI website - **Annex X**.
- At least at 100 m resolution - i.e. six figure grid reference - for scarcer axiophytes but lower resolutions as appropriate for the more widespread.
- New county and/or hectad records, and re-discoveries of species thought to be extinct within vice-counties recorded at least at 100 m resolution - i.e. six figure grid reference.

Resolution of recording	10 m	100 m	1 km	2 km
Nationally rare & scarce	✓	✓		
UK Priority Species (e.g. Red List, BAP)	✓	✓		
Other threatened (e.g. Welsh Red List)	✓	✓		
County rare & scarce	✓	✓		
Axiophytes	✓	✓	(✓)	(✓)
New county or hectad records	✓	✓		
Refinds of 'extinct' species	✓	✓		
All other species			✓	✓

Monitoring changes in distribution

The reasons for changes in the distribution of species are often complex and related to recording behaviour as well as changes in environmental conditions (e.g. climate) and land-use (e.g. habitat loss, pollution). It is therefore important that BSBI recording provides a robust 'baseline' from which we can measure the effects of unanticipated changes that might emerge in the future (e.g. effects of new energy sources such as biofuel, wind farms) as well as 'drivers' known to be affecting the distribution of species now (e.g. eutrophication, pollution, climate change, etc.). There are a number of potential ways to do this using BSBI records including analyses of:

- Change in hectads between date-classes
- Change in tetrads between flora projects
- Change in numbers of sites/records in Rare Plant Registers
- Changes in populations through targeted species survey
- Changes in occupancy of Local Change tetrads
- Changes recorded on repeat site surveys
- Changes on small, fixed plots located within different habitats e.g. 'stands' and 'habitat studies' *sensu* Good (1948) and Dony (1953) respectively

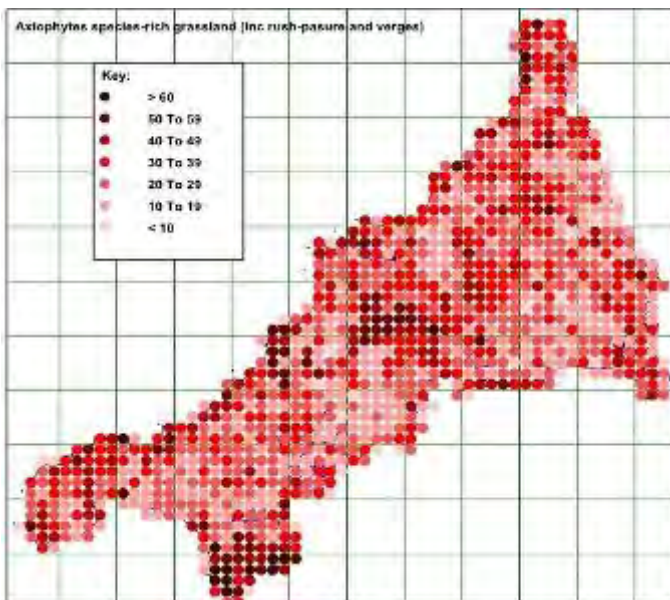


Figure 9. Tetrad coincidence map of 'axiophytes' of species-rich grassland in Cornwall.

Figure supplied by Colin French & Ian Bernallick.



Figure 10. Two species which appear to be rapidly expanding their range in Britain, possibly due to climate change: Bee Orchid *Ophrys apifera* (Photo: Kevin Walker) and Early Meadow-grass *Poa infirma* (Photo: Ian Bennallick)

Provision of records and data handling

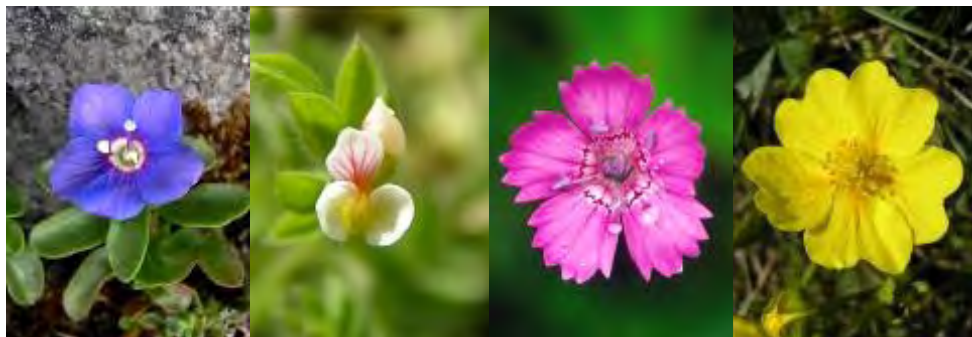
Improvements to current data handling and provision will include the following:

- **Development of a new 'Big' BSBI central database to integrate** records held in the BRC Vascular Plants Database, MapMate Hub and other BSBI holdings in their disparate formats
- To design and implement efficient data flows to this new database to ensure it is as comprehensive and up-to-date as possible
- To design and implement various outputs from the database to **facilitate analysis, including distribution maps 'published' on the website and other on-line facilities such as 'data entry/editing'**
- All post 1999 records to be computerised and shared with the BSBI (annually or more frequently from now on). Back-log or difficult cases to be tackled centrally, potentially using volunteers to assist or funding where available
- **Initiatives to digitise valuable 'historic datasets' with detailed data (tetrad or better); data capture at full resolution, especially for period 1987-1999**
- Development of a standard data-sharing policy between BSBI, BRC, the NBN Gateway and Local Records Centres, establishing preferred data flows and data quality standards

VCR duties and central support

Both these are outlined in the General VCR Guidelines under **Annex XI**. The central support the BSBI would offer includes:

- All records held for a vice-county to be made available to both established and newly appointed VCRs
- Central support with all recording software, though we recommend MapMate
- Central support on recording priorities, preferably through visits from regional and national officers - possibly with a system of voluntary regional coordinators in England
- Central support for recorders via conferences, workshops, training events and newsletters
- Central support for general recording via guidelines, VCR resources, on-line services, data sharing policies, archives, etc. - **Annex XII**
- Central support with recording technology, such as GPS, mapping tools, PDAs, etc., possibly under grant schemes where funding is available
- Guidance on taking and preparation of voucher specimens, use of referees, long-term care of herbaria etc. - **Annex XIII**
- Guidance on access for recording generally, with the possibility of a 'BSBI identity card', and steps to obtain better coverage for habitats that are difficult to sample - e.g. aquatics, motorways, railway lines etc. - **Annex XIV**



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Feedback and comments

We would be really pleased to have your feedback or comments on **this publication or any aspect of the BSBI's work**. Please send them to Kevin Walker, BSBI Head of Research & Development, 97 Dragon Parade, Harrogate HG1 5DG kevinwalker@bsbi.org.uk

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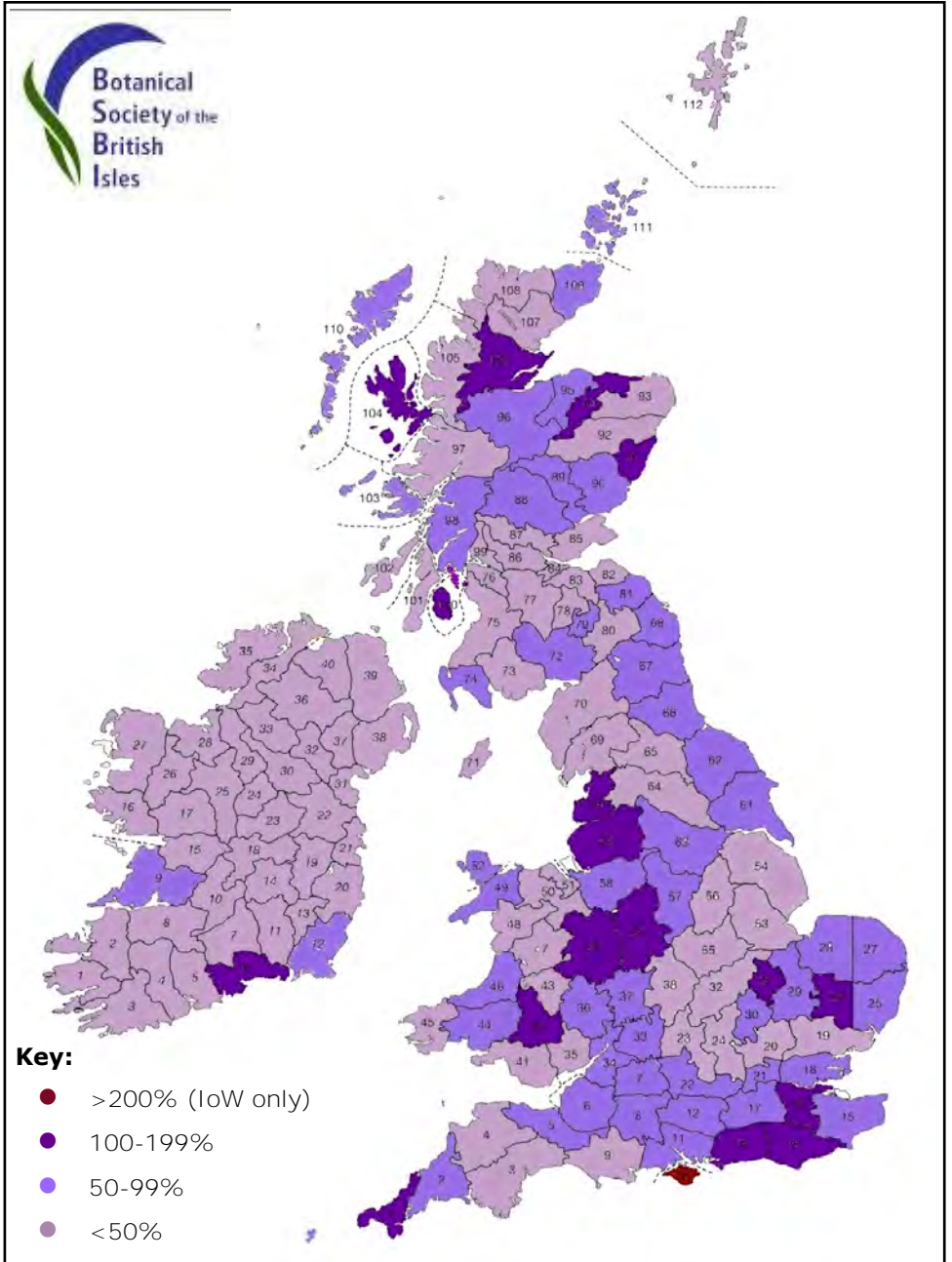
BSBI would like to acknowledge the generous financial support provided by Natural England, the Countryside Council for Wales and Scottish Natural Heritage.



Annex - BSBI recording guidance and other resources

Annex	Document	Where available?
I	Guidance on sampling approaches for recording at different resolutions	www.bsbi.org.uk/Sampling_Guidance_2011.pdf
II	Guidance on producing County Rare Plant Registers	www.bsbi.org.uk/CRPR_Guidelines.pdf
III	Guidance on selecting axiophytes	www.bsbi.org.uk/axiophytes.html
IV	Guidance on recording for Local Change / Surveillance	In preparation
V	Guidance on maintaining up to date lists for the VCCC	www.bsbi.org.uk/NJBRecordsform2013.xls
VI	Guidance for maintaining status lists for the VCCC	Included in the above guidance
VII	Spreadsheet of all GB and Irish taxa ('BSBI list')	New version planned
VIII	Guidance on recording difficult taxa	Under review
IX	Guidance on recording the status of difficult taxa	Under review
X	Spreadsheet of UK priority species	www.bsbi.org.uk/TaxonDesignationsVascularPlants.xlsx
XI	General VCR guidelines	Please contact Bob Ellis*
XII	Support available to VCRs	This list
XIII	Guidance on taking vouchers, use of referees, and pressing specimens	www.bsbi.org.uk/Collecting.pdf Note that the use of referees is covered in the <i>Year Book</i> .
XIV	Guidelines on access (to the countryside)	In preparation

*Bob Ellis, BSBI Projects Officer; bob.ellis@bsbi.org.uk



Map of 'recording coverage' achieved since 2000 compared with 1987-1999: based on data submitted electronically to the BSBI to the end of 2009. (Some Vice-counties with lower percentages had very active recording schemes in the 1987-1999 period and therefore have not yet completed full re-surveys.)