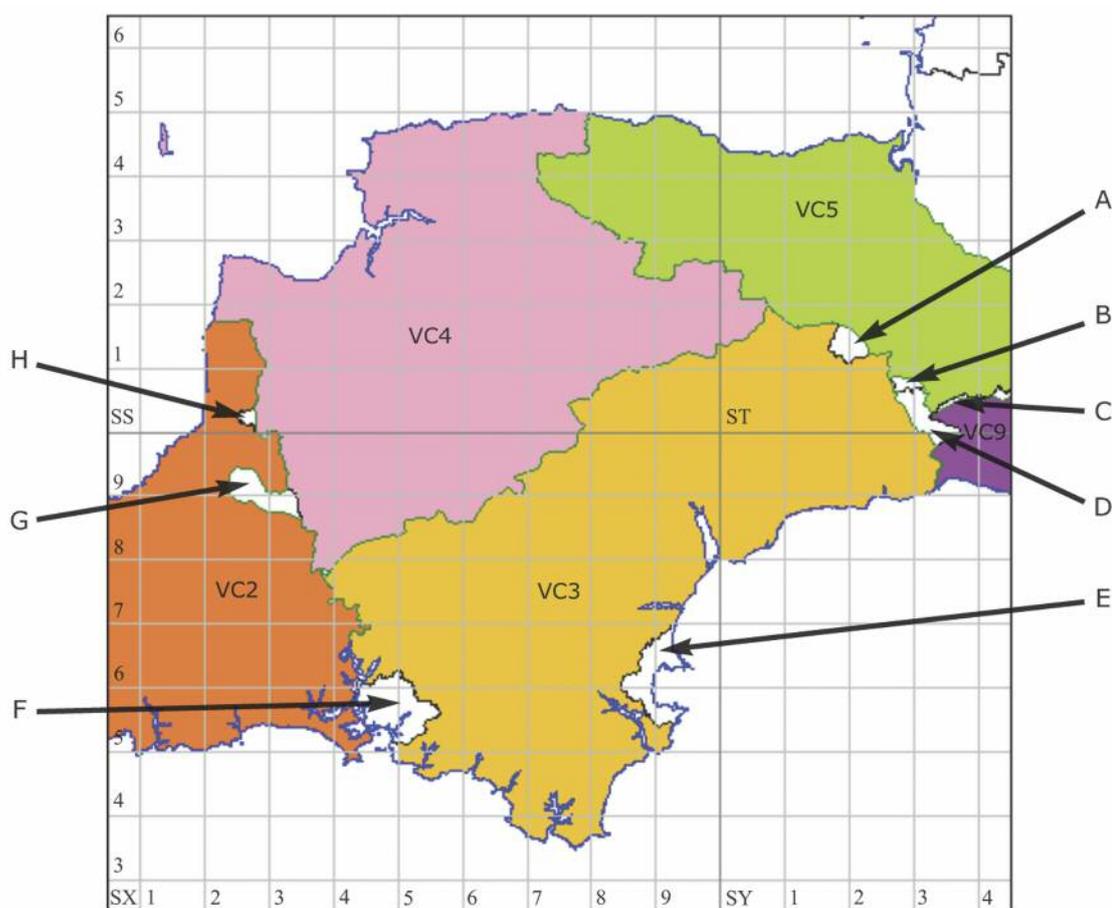


# Introduction to the species accounts

## Area included

The recording area comprises mainly the Watsonian vice-counties 3 (South Devon), and 4 (North Devon). These vice-counties include the whole of the unitary authority areas of Plymouth and Torbay and small parts of the current administrative counties of Cornwall and Somerset. Also included are those parts of VC2 (East Cornwall), VC5 (South Somerset) and VC9 (Dorset) that now fall within the administrative county of Devon. The distribution maps are based on the boundaries digitised by MapMate (Teknica Limited 1998–2009) from Dandy’s maps (Dandy 1969) with the permission of the Ray Society, except where the MapMate boundary is known to be wrong.



Letter	Watsonian VC	Current administrative area
A	VC3 South Devon	Somerset
B	VC9 Dorset	Somerset
C	VC5 South Somerset	Dorset
D	VC9 Dorset	Devon
E	VC3 South Devon	Torbay
F	VC3 South Devon	Plymouth
G	VC4 North Devon	Cornwall
H	VC2 East Cornwall	Devon

Number of whole or part hectads and tetrads found in Devon as defined here (these may be shared across the boundaries).					
	VC2	VC3	VC4	VC9	All
Hectads	1	60	50	3	96
Tetrads	4	1,029	915	17	1,850

### Sources

Original sources have been examined and are quoted wherever possible. The older records rely heavily on those given in the *Flora of Devon* (Martin & Fraser 1939, subsequently cited as 'Flora') and, where there is no other source, this is cited as the origin of the record. At this distance in time it is very difficult to know how to judge the accuracy of past records. In general it is believed that the authors of the *Flora* were very thorough and these records are usually accepted at their face value. Nevertheless, they too were reliant on the accuracy of earlier accounts.

The data collated for the *Atlas of the Devon Flora* (Ivimey-Cook 1984, subsequently cited as 'Atlas') by R.B.Ivimey-Cook, to be read by a 'Fortran' program, was made available by him, reformatted by Nick Stewart, and imported into MapMate (Teknica Limited (1998-2009)). These records provide a tetrad reference together with year and recorder. Additional information is rarely available and they do not appear to have undergone much in the way of critical review. The Atlas was published in a hurry as the main-frame computer on which the maps were generated was about to be replaced. Molly Spooner, who contributed more records for the project than any other contributor, conducted a review of records she made in a single hectad and found a considerable number were misplaced. Where it is believed errors may have been published the records are retained or mapped but attention is drawn to the possibility of mistakes.

Records published in the Transactions of the Devonshire Association for the Advancement of Science, Literature and the Arts (Devonshire Association or DA), especially those made since 1987, are accepted without question as every effort has been made to verify the accuracy of all such records, often with the assistance of national referees.

Hectad records made for *New Atlas of the British and Irish Flora* (Preston, Pearman & Dines 2002) between 1987 and 1999 pose another problem. In many cases they are the only available records and no other information is provided. This seems very odd as many such records of uncommon species might have been expected to feature in the annual reports in the Transactions of the Devonshire Association and include more detail. In South Devon (VC3) the records were collated by L.M.Spaldon (BSBI, VC3 recorder) with the assistance of L.J.Margetts (Vascular Plant Recorder for the Devonshire Association). They were also responsible for the majority of the records made in VC3 during this period. Both raw data sheets and final confirmed lists are available for checking. These confirm the inclusion of most, if not quite all, such records. In North Devon (VC4) records were collated by W.H.Tucker (BSBI, VC4 recorder) who was also responsible for many of the vice-county records. Although we did not have access to his raw data sheets or the final lists we did have his card index of important vice-county records where many of the records might have been expected to be listed. These records are a subset of the British records held by the Biological Records Centre and were imported into MapMate in 2005 from a file supplied by Bob Ellis at BSBI. All are acknowledged as "BSBI Atlas".

Many records, old and new, are supported by herbarium specimens. A list of herbaria consulted is given below. All the specimens in **TOR** have been re-examined by L.J.Margetts and corrections made to the identification where necessary. Complete access to the specimens in **RAMM**, which include W.P.Hiern's collections, was only made available more recently and only a small number of specimens have been re-examined. Some of the collection once held at **EXR** is now at **RAMM**, others at **LIV**, and it has not been possible to look at many of these again. The Plymouth Institution and Athenaeum (**PLY**) was bombed in 1942 and most of the collections lost. Specimens of many plants collected in Devon were circulated through

exchange schemes and are now held in herbaria scattered throughout much of England, Wales and Scotland. Records of herbarium specimens attached to BSBI records are accepted without question. More recently other herbarium specimens have been made available by the herbaria@home scheme which often include a high resolution image. While it is possible to confirm the determination of many of these without further effort this is not always the case. In some instances the determination is clearly incorrect, in others it is not possible to see enough detail to confirm the original determination. Staff and volunteers at most herbaria have been very helpful in re-examining specimens and confirming identifications. In other places no such help has been provided and the records have not been included.

## Species accounts

Names and order follow Stace (2010) except within Rosaceae where the sequence follows Stace (1997). The order within genera not covered in detail by Stace follow Newton & Randall (2004) (*Rubus* sections *Rubus* and *Corylifolii*), Dudman & Richards (1994) (*Taraxacum*) and Sell and Murrell (2006) (*Hieracium*).

Each species account follows a general pattern. It opens with a statement giving its abundance in Devon, based on the tetrad count from 1987 onwards, as defined below. It is followed by statements describing its conservation status, where appropriate, and its general status in the British Isles, also defined below. Where known, the area of origin of introduced plants is also given. Any part of this may be qualified in subsequent text. This is followed by a brief description of the habitats in which the plant is found and, where appropriate, historical and more recent information may also be included. Each opening statement concludes with page references to the Flora and the Atlas, if the species was included, together with any synonyms used. The Atlas page number is followed by the tetrad count, in brackets, made at the time of publication and is followed by the tetrad count of records made from 1987 to the present day.

When this New Flora was first mooted in 2004 there was no intention to re-record the flora at either tetrad or hectad level. However, it has been a long time in the writing and this has allowed almost all tetrads to be visited at least once. However, some tetrads may have been visited only during winter months when some species are either difficult to identify or below ground. As a consequence numbers do not necessarily reflect change, especially losses. New records have been made while the type-setting process was underway. The latest records have been added to sections yet to be set but for earlier sections have been added to an addendum of 'late' records.

Maps and grid references are based on the Ordnance Survey National Grid. They are colour-coded at both the hectad (10 km) and tetrad (2 km) level in four date classes described below. The large size of the county and the number of species recorded precludes the inclusion of a map for every species. The commonest species are simply covered by a statement to the effect that these are widespread throughout the recording area often with a qualification that they are absent from the upland areas of Dartmoor and Exmoor. The maps in the Atlas are still relevant for these species. Where a map is included the outlying records or the most recent records may be listed as well. Species with a 'scatter-gun' distribution that indicates little or nothing at all may not be mapped either, very rare and some rare species are not mapped. In these cases a full list of all records is given to indicate their known history on each site.

The lists of records follow a pattern within each vice-county based on the 100 km grid: SX, SY, SS, ST in VC3 and SX, SS, ST in VC4 starting in the southwest. Within each hectad records are usually listed from south to north and west to east. Where there is at least one current record, 1987 or later from a hectad, the hectad label is in bold. Ideally records include location, a six figure grid reference, the year in which the record was made, the recorder, the determiner if different and the source of the record. Recently accepted records may not include a source if they have not been published before. In some instances the grid reference is only known at the 1 km or tetrad level. Records kept by the Devonshire Association up to and beyond 1939 were maintained by parish and, with the exception of some rarer species, this is usually the only level available. As a consequence no attempt has been made to ascribe a grid reference to the majority of old records better than the hectad level.

## Introduction to the species accounts

The use of a national grid reference was adopted rather slowly following publication of the Flora and, as already noted above, records for the Atlas were kept at the tetrad level. Standard herbarium abbreviations (see below) are quoted if a specimen exists. Finally, records of plants only known as a hectad reference are appended below the main list to save space. These too are in bold where there is a 1987 or later record.

### Abundance

Abundance is based on tetrad counts given in the Atlas and a current count of tetrad records made from 1987 onwards where a hectad only record counts as one.

Extinct	Last seen 1986 or earlier.
Very rare	Recorded in <10 tetrads since 1986.
Rare	Recorded in 10 to 30 tetrads since 1986.
Occasional	Recorded in 31 to 100 tetrads since 1986.
Frequent	Recorded in 101 to 500 tetrads since 1986.
Common	Recorded in 501 to 1400 tetrads since 1986.
Very common	Recorded in >1400 tetrads since 1986.

Plants recorded as Extinct should be regarded as a challenge. In some cases, e.g. most of the aliens associated with the wool waste at Bradley Woollen Mills, they are unlikely to be found again. Others such as *Rosa* hybrids and especially *Rubus* which require a significant degree of expertise in order to identify them correctly may well have been overlooked. Nevertheless, populations of rare plants which had not been seen since the 19<sup>th</sup> century have been re-located in the last 30 years, new populations have been found, and others may be waiting for the right person to seek them out or to stumble upon them.

### Conservation status

The conservation status includes the current status in the British Isles based on the *Vascular Plant Red Data List for Great Britain* (Cheffings & Farrell 2005) and its amendments (Leach 2007, 2010; Leach & Walker 2011, 2013). *The Red List for England* (Stroh *et al.* 2014) was published when about half the text of this Flora had already been laid out and is not referred to. In general, plants red-listed for Britain will be red-listed for England but may have been re-graded by a level up or down. A full comparative list is given in Appendix 1.

**Status** (Macpherson *et al.* 1996; Preston, Pearman & Dines 2002)

Native	Present in the study area, without intervention by man, whether intentional or unintentional, having come from an area in which it is native, or a taxon that has arisen <i>de novo</i> in the study area.
Endemic	A plant found native, only in the study area.
Archaeophyte	A plant naturalised before AD 1500. Archaeophytes are more or less confined to artificial habitats and are known or suspected to have been naturalised in our area before 1500. They are often known from archaeological evidence to have been present in prehistoric times.
Neophyte	A plant naturalised after AD 1500 or was only casual before this date. There is no evidence that plants classified as neophytes were growing in the wild in our area before 1500, and many come from areas such as the Far East or the New World which in itself virtually precludes the possibility that they arrived before that date.
Casual	A plant which is present only as populations which fail to persist in the wild for more than approximately five years. Such a species is dependent on constant reintroduction.

## Maps (Colour codes)

Year	10 km	2 km
2000 or later		
1987 to 1999		
1970 to 1986		
Before 1970		

## Herbaria

<b>ABD</b>	Aberdeen
<b>ABRN</b>	Centre for Ecology and Hydrology
<b>ABS</b>	University of Wales
<b>AN</b>	Private, A.Newton (will be donated to NMW)
<b>AWR</b>	Private, A.W.Reid
<b>BEL</b>	Ulster Museum
<b>BIRA</b>	Birmingham Museums Trust
<b>BIRM</b>	University of Birmingham
<b>BM</b>	The Natural History Museum
<b>BON</b>	Bolton Museum, Art Gallery and Aquarium
<b>BPL</b>	Museum of Barnstaple and North Devon
<b>BR</b>	National Botanic Garden of Belgium
<b>BRIST</b>	University of Bristol
<b>BRISTM</b>	Bristol Museum and Art Gallery
<b>CAM</b>	St John's College, Cambridge
<b>CGE</b>	Cambridge University
<b>DEA</b>	Private, D.E.Allen
<b>DHM</b>	University of Durham
<b>DJA</b>	Private, D.J.Allen
<b>E</b>	Edinburgh
<b>EJM</b>	Private, E.J.McDonnell
<b>ESE</b>	Private, E.S.Eedes (now at NMW)
<b>EXR</b>	Exeter University
<b>FMD</b>	Private, F.M.Day
<b>HDD</b>	Tolson Museum, Huddersfield
<b>HLU</b>	University of Hull
<b>JEL</b>	Private, J.E.Lousley
<b>JJD</b>	Private, J.J.Day
<b>K</b>	Kew
<b>LANC</b>	University of Lancaster
<b>LIV</b>	World Museum Liverpool
<b>LJM</b>	Private, L.J.Margetts (some now with <b>RENS</b> , will be donated to <b>NMW</b> , all <i>Taraxacum</i> already at <b>NMW</b> )
<b>LSR</b>	Leicestershire County Council Museum Service
<b>LTR</b>	University of Leicester
<b>MANCH</b>	University of Manchester
<b>MBH</b>	Marlborough College
<b>MMcW</b>	Private, M.McCallum Webster (a few Devon specimens are held at <b>ABD</b> , others must be elsewhere).

## Introduction to the species accounts

<b>MNE</b>	Maidstone Museum and Art Gallery
<b>MP</b>	Private, M.Porter
<b>NFS</b>	Private, N.F.Stewart
<b>NMW</b>	National Museum of Wales
<b>OXF</b>	University of Oxford
<b>PLH</b>	Plymouth City Museum and Art Gallery
<b>PLY</b>	Plymouth Institution and Athenaeum (destroyed by bombing in 1942 (Masson Phillips 1942))
<b>PRG</b>	Private, P.R.Green
<b>PTH</b>	Perth Museum and Art Gallery
<b>RAMM</b>	Royal Albert Memorial Museum, Exeter
<b>RDR</b>	Private, R.D.Randall
<b>RENS</b>	Private, R.E.N.Smith (will be donated to NMW)
<b>RFT</b>	R.F.Towndrow, at Malvern Free Library
<b>RNG</b>	University of Reading
<b>RWG</b>	Private, R.W.Gould (currently held by K.Spurgin in Cornwall)
<b>SLBI</b>	South London Botanical Institute
<b>SUN</b>	Sunderland Museum
<b>TOR</b>	Torquay Museum
<b>TRD</b>	Ancient House Museum, Thetford
<b>WHT</b>	Private, W.H.Tucker (currently with RENS)

## Abbreviations

Flora	Flora of Devon (1939)
Atlas	Atlas of the Devon Flora (1984)
BRC	Biological Records Centre, Wallingford
DA	Devonshire Association
DAB	Devonshire Association Botany Section
DBRC	Devon Biological Records Centre
DNP	Dartmoor National Park
DTNC	Devon Trust for Nature Conservation (now DWT)
DWT	Devon Wildlife Trust (formerly DTNC)
ENHS	Exeter Natural History Society
ITE	Institute for Terrestrial Ecology (now Centre for Ecology and Hydrology, Monkswood)
KDNHS	Kingsbridge & District Natural History Society
LFS	Lundy Field Society
NDBG	North Devon Botany Group
NVC	National Vegetation Classification
SLFC	Slapton Ley Field Centre