

Devon whitebeam and related species

1. A Definition

Whitebeam are attractive and interesting trees; the foliage of many of them is unusual in that the undersides of the leaves are suffused with white, and they produce colourful orange-brown or red/scarlet berries in autumn.

Although the best-known member of the genus *Sorbus* in Devon is the rowan or mountain ash, the County is also home to other scarcer species, some of which occur nowhere else in the world. Indeed Devon is one of the richest counties in Britain for whitebeam.

The British species of *Sorbus* comprise three widespread and sexually-reproducing species (common whitebeam *S. aria*, rowan *S. aucuparia* and the wild service tree *S. torminalis*) the flowers of which must be pollinated and the ovules fertilised before fruit can be set, but in addition some twenty species which are "apomictic", that is they can set viable seed without fertilisation and the progeny generally have the same genetic constitution as their parents. Such species form populations of essentially identical individuals, or clones. Devon supports seven such species, all but one of which are endemic to Britain and Ireland; the Devon whitebeam *S. devoniensis* (also known as French Hails, especially in years gone by), *S. subcuneata*, *S. anglica*, *S. vexans*, *S. porrigentiformis*, the rock whitebeam *S. rupicola* and two unnamed species known as "Taxon D" and East Lyn Valley form (ELV, otherwise known as the No Parking tree, since the original specimen was found next to a road sign!). For the purposes of this plan "whitebeam" shall refer to the above eight species.

2. Why an Action Plan?

The whitebeam of Devon are of great interest to biologists and geneticists for the evidence they provide how plants use their stock of genetic variability, and on the dispersal and geographical spread of native plant populations.

Even to the less scientifically-minded of us, these species, with their subtly different leaf shape and fruit colour are important elements of Devon's biodiversity.

Considering the fact that the entire population of some of the species consist of just a handful of known trees in a few localised areas, they are highly vulnerable, both to habitat loss or degradation and to more individual hazards, such as specimen collection.

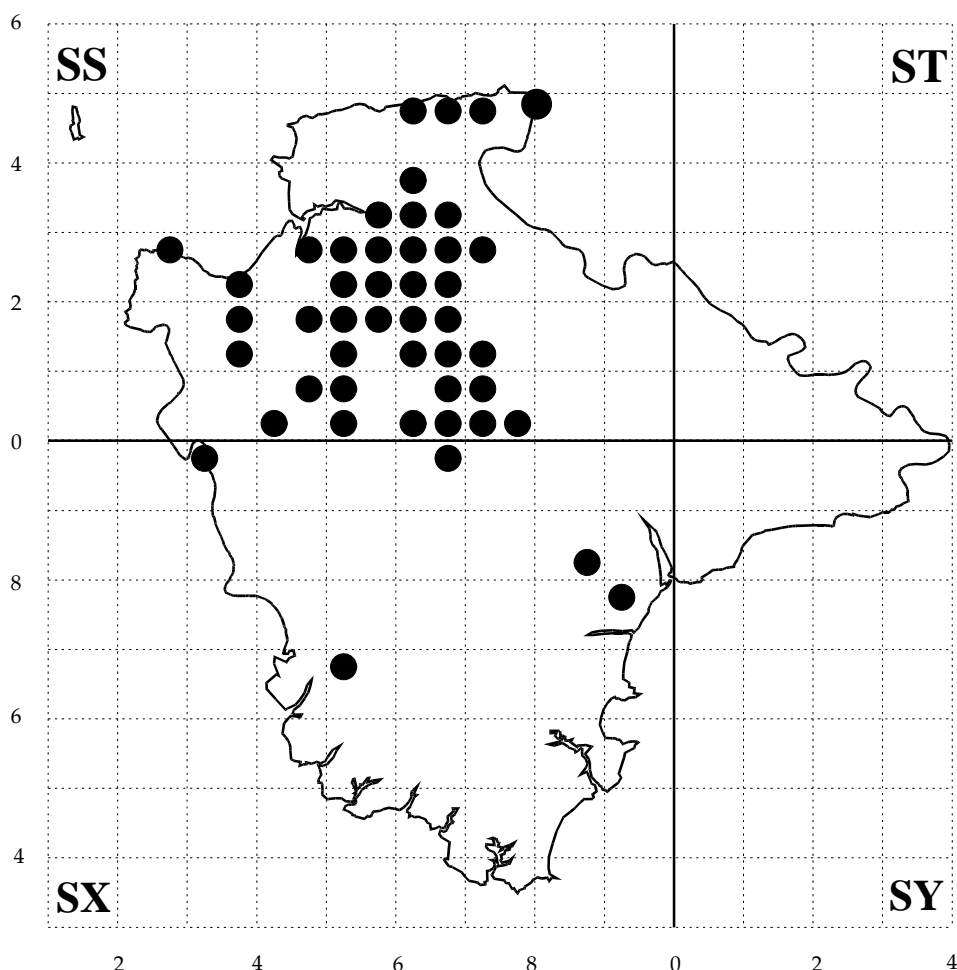
3. Relevant ecology

The main habitat of all of the species but the Devon whitebeam is open woodland, usually on steep slopes near to the sea or rocky coastal cliffs, but including less wooded areas and scrub in a few localities.

The Devon whitebeam is different from the others in that it is largely a hedgerow species, but also occurs in a few sites on rocky oak wood and even moorland edges. It is essentially a species of acid soils, whereas the others occur mostly on base-rich soils.

Many of the species exhibit "self coppicing", where stems regenerate and spread from the broken trunk. This demonstrates one aspect of their great tenacity for life, and many of the species live quite happily on extremely exposed and precipitous coastal cliffs.

4. Distribution of whitebeam in Devon (1998)



Devon Whitebeam (*Sorbus devoniensis*) presence in 5 Km squares

(Data supplied by David Cann and Dr M C F Proctor)

5. Distribution of scarce whitebeam species in Devon

The table below indicates the Devon distribution of the whitebeam (other than *S. devoniensis*, for which see above map), with an indication of the relevant Local Authority and Natural Area in which each occurs:

Species	Localities	Local Authority	Natural Area
<i>S.</i> "East Lyn Valley"	The East Lyn Valley around Watersmeet and above Sillery Sands	North Devon, ENP	Exmoor and the Quantocks
<i>S. subcuneata</i>	Largest population near Watersmeet. Very local in East Lyn valley near Lynmouth, few sites near Martinhoe and Trentishoe. Outlying population in & around West Woodybay Wood, Martinhoe.	North Devon, ENP	Exmoor and the Quantocks
<i>S. vexans</i>	Coast between Culbone (Somerset) and just west of Trentishoe (Devon), also East Lyn valley between Lynmouth and Watersmeet.	North Devon, ENP	Exmoor and the Quantocks
<i>S.</i> "Taxon D"	Similar but slightly wider range than <i>S. vexans</i> ; just East of Culbone to Combe Martin.	North Devon, ENP	Exmoor and the Quantocks
<i>S. anglica</i>	North Devon: Combe Martin, West Woody Bay, Lee Bay. Stoneycombe, near Kingskerswell/Wilborough.	Teignbridge, North Devon, ENP	South Devon, Exmoor and the Quantocks
<i>S. rupicola</i>	Trentishoe, North Devon. Churston Cove at Brixham, and just South of Oddicombe Beach, Torbay.	Torbay, North Devon, ENP	South Devon and Exmoor and the Quantocks
<i>S. porrigentiformis</i>	North Devon: Trentishoe, Woody Bay and East Lyn Valley; On limestone around Babbacombe, also two plants on cliffs at Daddyhole Plain; one plant in Broadridge Wood, nr. Newton Abbot.	Torbay, Teignbridge, North Devon, ENP	South Devon and Exmoor and the Quantocks

6. Current population

Apart from *S. devoniensis*, which is relatively numerous across the North and West of Devon, the other species are often represented by only a few (and sometimes just one) individual trees in many of the sites listed in the above table.

S. devoniensis and the rather similar *S. croceocarpa* have been planted in locations around the County (as have rowan, and common whitebeam).

7. Current problems for whitebeam in Devon (1998)

It should be noted that because some of the whitebeam species are represented by only a handful of trees in a particular area, the possibility of local extinction is relatively high. Having said this, many sites are rather inaccessible (some highly so) and are unlikely to meet with human-related problems. The following factors are the most likely to pose threats:

- Loss of hedges, removal of hedgerow trees, too frequent and too close cutting of hedges; a threat to Devon whitebeam only.
- Invasion of non-native plants, especially Rhododendron, but also evergreen oaks in coastal areas such as Torbay, into woodland habitats, leading to out-competition of whitebeam.
- Excessive scrub/woodland encroachment may out-compete whitebeam in more open habitats, although moderate levels do not pose a threat.
- Development, such as building and quarrying pose potential threats to small populations, as does footpath creation/maintenance and operations such as the creation of view-point areas.
- Conspicuous and accessible individual trees are susceptible to damage by collection of specimens by botanists and gardeners.
- Lack of knowledge of landowners/managers of the species, their locations and habitat requirements, and the subsequent potential for accidental removal during woodland management operations.
- Potential conflicts of interest in management of sites, particularly at grassland sites at which scrub and tree removal is carried out.

8. Recent changes in population

There is little quantitative data on recent changes of *Sorbus* populations, and it is likely that for the species other than *S. devoniensis*, they have remained relatively constant for some time, apart from isolated cases of losses of individual trees, which are likely to have been balanced by seed dispersal from birds.

S. devoniensis on the other hand is likely to have experienced a decline in the number of individuals, since its main habitat, hedgerows, have declined both in length and quality over the past few decades.

9. Current protection (1998)

Several of the sites in which the scarcer *Sorbus* occur are Sites of Special Scientific Interest, including Watersmeet, West Exmoor Coast and Woods, Daddyhole.

Sites with whitebeam *not* in SSSIs include: Stoneycombe/Stoneycombe Quarry, Combe Martin, Sillery Sands, Babbacombe Down, Redgate Beach, Countisbury to Glenthorne coast, Churston Cove.

10. Biodiversity planning context

The Devon Biodiversity Action Plan forms a key link in the chain of biodiversity planning running from the National UK Plan, through regional guidance, to local delivery.

National BAP Context

Species of principal importance in England:

- *Sorbus vexans*

Habitats of principal importance in England:

- Maritime cliff and slopes
- Hedgerows
- Upland oakwood
- Lowland mixed deciduous woodland
- Lowland calcareous grassland

Associated Action Plans within the Devon BAP:

- Sea cliff and slope

- Pits and quarries
- Species-rich hedges
- Oak woodland
- Caves, karst and limestone habitats

11. Biodiversity objectives and targets for whitebeam in Devon

Objective 1

Maintain current viable populations of the apomictic species of whitebeam in Devon.

Target: Ongoing.

Objective 2

Attain a better understanding of the distribution and size of population of whitebeam species in Devon.

Target: Survey for rare whitebeam every 15 years.

Objective 3

Increase awareness and understanding of the Devon whitebeam species among land owners/managers, conservationists and the general public.

Target: Ongoing.

12. Wider benefits from pursuing these objectives

The pursuit of the objectives set out in this plan will not only benefit whitebeam. Conservation has wider benefits and advantages for society, by providing a resource which is the basis of many aspects of the local economy, and by adding to the quality of life of the people of Devon in ways which are beyond financial measure. Thus enhancing the interests of biodiversity enhances the interests of society as a whole.

The uniqueness to Devon of many of these trees stimulates the added element of interest and a sense of pride for local inhabitants, thereby helping to engender a wider appreciation of local environments and wildlife.

The whitebeam species highlighted in this Plan offer unique opportunities for scientific research into breeding systems, dispersal and establishment in natural populations of plants.

13. Priority or indicative actions for whitebeam in Devon

Action	Key Partners
1. Encourage appropriate management of sites containing whitebeam including hedgerow management; controlling excessive scrub; invasive species such as rhododendron, and regulating grazing so as to allow natural regeneration.	LAs; Land-owners; HCS; NPAs; CCMS; NT; DWT; FWAG; WT
2. Ensure local authorities are informed of endemic whitebeam locations and that they take proper account of the effects of proposed developments on populations. To include Tree Preservation Orders to protect individual whitebeam trees.	DBRC; LAs
3. Offer landowners and managers of all sites that hold the apomictic species of whitebeam advice on the location of trees, their scientific importance and vulnerability and good management practice.	DBRC; BSBI; NE; DWT; FWAG; NPAs
4. Re-survey all known sites of apomictic species (for <i>S. devoniensis</i> survey 1km squares as number of sites too many) once every 10 years. Ensure records are sent to DBRC and BSBI recorder.	BSBI; DBRC; Botanists; landowners
5. Publicise the existence of Devon whitebeam, how to recognise it and its biological significance and habitat requirements to convey information to landowners in their core range and to appeal for new records.	DBRC; NE; LAs; WT
6. Encourage the propagation and planting of Devon whitebeam in public places to raise public awareness and increase the population of the species (ensuring that records of all plantings are sent to BSBI/DBRC).	Land-owners; LAs; Garden centres
7. Ensure that the presence of Devon whitebeam is taken into account during mineral planning decisions (e.g. <i>S. anglica</i> at Stoneycombe, nr. Kingskerswell).	DCC; TeDC; DWT

Devon Whitebeam and Related Species Action Plan Champions: Botanical Society of British Isles / Exmoor National Park Authority
--

Abbreviations used in text and table

BAP Biodiversity Action Plan
 BSBI Botanical Society of British Isles
 CCMS Coast and Countryside Management Services of Local Authorities
 DBRC Devon Biodiversity Records Centre
 DCC Devon County Council
 DWT Devon Wildlife Trust
 ENPA Exmoor National Park Authority

FWAG	Farming and Wildlife Advisory Group
HCS	Heritage Coast Service
LAs	Local Authorities
NE	Natural England
NPAs	National Park Authorities
TeDC	Teignbridge District Council
WT	Woodland Trust