

Areas of outstanding botanical interest

Roadsides in Devon

There can be no doubt that roadsides are one of the most outstanding and valuable habitats for plants in Devon. Criss-crossing the length and breadth of the County, they have a hugely diverse flora and give sanctuary to many species that must have once been more widespread across neighbouring fields and woodlands. The mix of geology, soil-type, boundary features and management provide homes for the majority of commoner woodland and grassland plants together with many scarcer species. The importance and richness of many of the roads was exemplified by a visiting botanist from Belgium who could not understand why the verges close to North Wyke Research Station near Okehampton, where Early-purple Orchid *Orchis mascula*, puts on a wonderful display in the late spring, were not a designated nature reserve. Nevertheless, verges have been identified within Devon where rare species, which require special protection, occur and where fine stands of wild flowers exist. Devon County Council list 97 such sites. The plants protected by verge cutting season restrictions are mostly species of orchids but include several introduced plants such as Blue Sow-thistle *Cicerbita macrophylla*, Elecampane *Inula helenium* and Dusky Crane's-bill *Geranium phaeum*.



A species-rich roadside verge in mid-Devon north of Dunsford.

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Devon County Council maintains a network of 12,780 km of roads within the county. This excludes motorways and trunk roads, for which the Highways Agency is responsible, and those within the City of Plymouth and the Borough of Torbay, managed by the individual authorities. A policy to conserve flora and fauna on roadside verges was introduced by Devon County Council in the 1970s. The current version of the policy issued in 2010 (Devon County Council 2010) outlines the objectives. The control of growth on verges by cutting is necessary for both environmental and safety reasons and cutting is limited to achieving these objectives whilst not jeopardising the interests of wildlife. Cutting programmes vary between one and three cuts annually and are limited to one metre from the carriageway. The full width of wider verges is cut every third year to control excessive growth of brushwood. In a normal growing season the rural cutting commences with major road visibility areas during mid May. The rural verge grass cutting policy is designed to encourage a varied habitat across the verge with smaller wild flowers in the cut strip and the remaining uncut area permitting the growth of taller species that encourage insects, birds and small mammals. The management of roadside hedges and trees is largely the responsibility of farmers, private landowners and occupiers. Motorway and trunk roads managed by the Highways Agency in Devon are the M5, A30, A35, A38 and A303. The stated policy of the Highways Agency is to reduce the environmental impact of roads (Dept. of Transport 1998). The Agency “has made great efforts in recent years to manage its estate in a sustainable way. Road verges can be rich areas for wildlife and amount to a considerable area of land with great potential for habitat enhancement and creation” (*ibid.*).

In 2009 The Devon Biodiversity and Geodiversity Action Plan (BGAP) for Species-rich Hedges assumed 14,500 km of roadside in Devon, with half of these having hedges on both sides, giving at least 14,500 km of hedge. The term ‘hedge’ is taken to include earth banks, whether stone-faced or not, with or without trees and shrubs on top of them and associated features such as ditches, verges and headlands. It suggests that 75% of these hedges are species rich as defined by the BGAP. On the fringes of Dartmoor, some hedges continue the boundaries (‘reeves’) of Bronze Age field systems, some 3,500 years old. Three-quarters of all hedges in Devon



A well-vegetated wall near Ipplepen with a rich flora including Field Garlic *Allium oleraceum*.

are believed to be of medieval origin, most enclosure taking place between 1250 and 1450 (Devon Hedge Group and Devon County Council 2014) and very few are the result of Parliamentary Enclosure Acts. It is valley hedges that are usually of medieval origin while those of the higher ground were created in 18th and 19th centuries. Dry-stone walls are not included in these estimates but as noted below are an important feature in some areas.

Removal of hedges is now rare, except where necessary for building development, largely due to the Hedgerow Regulations 1997, but inappropriate management, including the annual cutting to the same height year after year or total neglect, leading to the gradual demise of many hedges is of greater concern. Fertiliser and pesticide drift, erosion of banks by large vehicles, the loss of hedgerow trees and severe flailing for reasons of road safety are also slowly but effectively changing and diminishing the vegetation composition of these hedgerows and contribute to their decline. Nevertheless, deep lanes, hedge-banks and thick hedges protect, to some extent, the roadside vegetation from the worst impact of fertilisers and pesticides.

Hedges in Devon have been grouped into six distinctive types by the Devon Hedge Group (2011):

- Beech *Fagus sylvatica* hedges planted as boundaries in the 18th and 19th centuries principally on the fringes of Dartmoor, Exmoor, on the Blackdown Hills and on the Culm Measures.
- Clayland hedges occupying a large area of central, west and northern Devon, usually with stone-faced banks. Common shrubs include Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monogyna*, Rowan *Sorbus aucuparia*, Hazel *Corylus avellana*, Guelder-rose *Viburnum opulus* and Holly *Ilex aquifolium* with Pedunculate Oak *Quercus robur* and Ash *Fraxinus excelsior* as standard trees.
- Windswept hedges with gorse on exposed upland and coastal areas where Gorse *Ulex europaeus*, Hawthorn and Blackthorn are the common shrubs with Sycamore *Acer pseudoplatanus*, Beech and Oak as the principal, often wind-cut, trees. Such hedges are frequently stone-faced and date from the medieval period through to 18th century.
- Stone-faced hedges and dry-stone walls characteristic of Dartmoor, southwest Devon and coastal areas in North Devon, the materials used reflecting the underlying geology. Stone-faced hedges may be very ancient. The Dartmoor reeves, as already mentioned, may be as much as 3,500 years old. The 'living hedge' associated with these walls varies from lines of trees to low scrub with Hawthorn, Blackthorn, Holly, Oak, Ash, Beech and Sycamore. Dry-stone walls, by contrast, date from the late 18th century, and on Dartmoor were built to enclose the "newtakes" of what had once been moorland.
- Hedges on chalk and limestone found in the areas around Plymouth, Torquay and Newton Abbot and in the far east of Devon with a great diversity of woody plants including less common species such as Dogwood *Cornus sanguineus*, Spindle *Euonymus europaeus*, Wild Privet *Ligustrum vulgare* and Wayfaring-tree *Viburnum lantana*.
- Elm-dominated hedges, usually English Elm *Ulmus procera*, found notably on the Redlands of mid- and East Devon, along the River Exe valley and coastal areas in the South Hams and the Bideford area of North Devon. These hedges were laid out between the 15th and 18th centuries. Since the onset of Dutch Elm disease in the 1970s standard trees have been absent though suckering growth maintains a sometimes untidy, mix of young growth and the dead crowns of shoots that have reached a height of three or four metres. Other species associated with the Elm hedges will include a range of the commoner woody species.

Hedgerows in spring and summer are ablaze with colour. In many years Snowdrop *Galanthus nivalis*, Lesser Celandine *Ficaria verna*, and Primrose *Primula vulgaris* can be expected by the end of January in the warmer parts of the county. The last is one of the great joys of the Devon spring. It often lines the foot of hedge-banks in the narrow lanes and with suitable management forms wonderful primrose yellow patches on the banks of the M5 and A38. By late spring some lanes are red, white and blue with Red Campion *Silene dioica*, Greater

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Stitchwort *Stellaria holostea* and Bluebell *Hyacinthoides non-scripta*. Added to these will be a vast array of other spring and summer species depending on moisture, substrate, location and degree of shading. These will include Clovers *Trifolium* spp., Ramsons *Allium ursinum*, Buttercups *Ranunculus repens* and *R. acris*, Vetches *Vicia* spp., Crane's-bills *Geranium* spp., Dog's Mercury *Mercurialis perennis*, Garlic Mustard *Alliaria petiolata*, Common Dog-violet *Viola riviniana* and Foxglove *Digitalis purpurea*.

Many of the commoner grasses such as False Oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata*, Wood Melick *Melica uniflora*, False-brome *Brachypodium sylvaticum*, Bents *Agrostis* spp. and Red Fescue *Festuca rubra* are also present. Tall Fescue *Schedonorus arundinaceus* may dominate locally especially near the sea in the South Hams. Hairy-brome *Bromopsis ramosa* and Giant Fescue *Schedonorus giganteus* are widespread but less abundant. Floating Sweet-grass *Glyceria fluitans* may well be found where water runs down the edges of lanes together with such species as Square-stalked St John's-wort *Hypericum tetrapterum*, Fool's-water-cress *Apium nodiflorum* and Water Mint *Mentha aquatica*. On the damper verges of North Devon Hemlock Water-dropwort *Oenanthe crocata*, Meadowsweet *Filipendula ulmaria* and Common Valerian *Valeriana officinalis* are all widespread. Where the soils are more acid, Slender St John's-wort *Hypericum pulchrum*, Bitter-vetch *Lathyrus linifolius* and Betony *Betonica officinalis* may be common. Common ferns include Soft Shield-fern *Polystichum setiferum*, Hart's-tongue *Asplenium scolopendrium*, Male-ferns *Dryopteris* spp. and Black Spleenwort *Asplenium adiantum-nigrum* particularly in the more shaded hedgerows. Black Bryony *Tamus communis*, Honeysuckle *Lonicera periclymenum*, Bindweeds *Calystegia sepium* and *C. silvatica* and Brambles *Rubus fruticosus* agg. are widespread and common climbers and ramblers and Hairy Bindweed *C. pulchra* is scattered here and there across the county. Roses are common, especially Dog Rose *Rosa canina* and Field-rose *R. arvensis* while Sherard's Downy-rose *R. sherardii* is most often found in North Devon and around the fringes of Dartmoor. Hop *Humulus lupulus* is widespread but commonest in South and East Devon. Wild Madder *Rubia peregrina* is locally common in hedges near both coasts and in the Newton Abbot area. Where roads pass by or through woodland, verges support a mixture of hedgerow and woodland plants including more shade tolerant species. Yellow Archangel *Lamiastrum galeobdolon*, Sanicle *Sanicula europaea*, Wood-sedge *Carex sylvatica* and Bluebell are widespread whilst Woodruff *Galium odoratum* and Wood Anemone *Anemone nemorosa* are more local. Southern Wood-rush *Luzula forsteri* is frequent but more or less limited to South Devon. Dry-stone walls have a rich and diverse flora. Wall tops are usually good places to find relatively common species such as Thyme-leaved Sandwort *Arenaria serpyllifolia*, English Stonecrop *Sedum anglicum*, together with a range of grasses including Fern-grass *Catapodium rigidum*, Silver Hair-grass *Aira caryophyllea*, Early Hair-grass *A. praecox* and Spreading Meadow-grass *Poa humilis*. Open moorland roadsides on Dartmoor and Exmoor are heavily grazed by ponies, cattle and sheep. There is often a low bank by the road which typically holds a much richer plant community than the usual moorland species. Most of these are common grassland species including Common Bent *Agrostis capillaris*, Yarrow *Achillea millefolium*, Clovers, Common Mouse-ear-hawkweed *Pilosella officinarum* and sometimes Wild Thyme *Thymus polytrichus*.

Alexanders *Smyrniium olusatrum*, an archaeophyte introduced in Roman times, is a notable feature of verges near both coasts where it often forms dense stands swamping out all but the most vigorous competition. Of more recent origin both Greater Periwinkle *Vinca major* and especially Lesser Periwinkle *V. minor* may extend along roadsides from the edge of villages and isolated dwellings, sometimes for hundreds of metres, dominating and excluding native vegetation. Winter Heliotrope *Petasites fragrans* may do the same and is a notable problem in parts of the Torbay area where it dominates areas of what should be limestone grassland.

Amongst the less common trees, Small-leaved Lime *Tilia cordata* occurs occasionally in hedges near Newton Abbot and in the South Hams, sometimes as fully grown trees or outgrown hedges and sometimes trimmed as part of the hedge. Devon Whitebeam *Sorbus devoniensis* is thinly scattered either as individual trees or short sections of hedge in North Devon. Similarly, Wild Service-tree *S. torminalis* is frequent in hedges to the north-west of Exeter and around Hatherleigh, and occasionally elsewhere.

Balm-leaved Figwort *Scrophularia scorodonia* has been known from the Kingsbridge area since the 19th century and is now relatively common in roadside hedges in that area. It appears to be spreading and has been found on roadsides in more urban settings. It was first found in the Plymouth area in 1988 and more recently, in 2006,



Bastard Balm *Melittis melissophyllum* on the roadside near Highweek.

in Exeter. Italian Lords-and-Ladies *Arum italicum* subsp. *neglectum* is another notable plant of verges in the far south of the county.

Early-purple Orchid is not the only orchid to be found on roadside verges though it is probably the most widespread. There are some fine populations of both Southern Marsh-orchid *Dactylorhiza praetermissa* and Common Spotted-orchid *D. fuchsii* by the A38. Until 2010, when the site was damaged by a contractor applying herbicide to what was supposed to be a protected area, there were notable populations of these two species, among many others, by the Crammers Cross interchange near Chudleigh. Michel Hughes had been monitoring the orchid populations there from 1988. Before this tragedy, the population of Greater Butterfly-orchid *Platanthera chlorantha*, had increased from 27 in 1990 to 717 in 2008. Other orchid species present in small numbers were Bee Orchid *Ophrys apifera*, Common Twayblade *Neottia ovata*, Green-winged Orchid *Anacamptis morio*, Pyramidal Orchid *A. pyramidalis*, Bird's-nest Orchid *Neottia nidus-avis* and Early-purple Orchid *Orchis mascula*. There was also a substantial population of Adder's-tongue *Ophioglossum vulgatum* numbering hundreds of plants. In late May 2011, in spite of the damage, 180 species of vascular plants were recorded on verges in the vicinity of the interchange that included undamaged areas, reflecting the species richness of this area. However, amongst the orchids only small numbers of *Platanthera* and the two *Dactylorhiza* species were found and there was no sign of *Ophioglossum*.

Bastard Balm *Melittis melissophyllum* occurs as a woodland plant at a number of places in Devon but many of the big populations are on roadsides where an annual cut appears to suit it admirably. Hairy St John's-wort *Hypericum hirsutum* is locally frequent in hedges south of Newton Abbot and around the edge of Torquay, but rare elsewhere. Pale St John's-wort *H. montanum* is much less common and only a few populations can be found on roadsides where the limestone is close to the surface. Saw-wort *Serratula tinctoria* and Zigzag Clover *Trifolium medium*, both typical of species-rich rhôs pasture, are also frequent on damp roadsides on the Culm

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together with Devil's-bit Scabious *Succisa pratensis*, Sneezewort *Achillea ptarmica* and Ragged-Robin *Silene flos-cuculi*.

On Dartmoor, Upright Chickweed *Moenchia erecta* and Moonwort *Botrychium lunaria* can be found occasionally on moorland verges, and Chamomile *Chamaemelum nobile* may be locally frequent in damp places. Around the edge of the moor Shepherd's Cress *Teesdalia nudicaulis* can be seen growing abundantly on the granite roadside wall tops where the stiffly erect remains of plants with typical seed-heads persist long into summer. One of very few small populations of Hoary Cinquefoil *Potentilla argentea* grows on a roadside wall top north of Moretonhampstead. In addition to its coastal populations, Lanceolate Spleenwort *Asplenium obovatum* is associated with the metamorphic aureole around Dartmoor where nearly all the known populations are on the faces of shady roadside dry-stone walls and can be locally common. Southern Polypody *Polypodium cambricum* may be locally common on limestone walls around Plymouth and south of Newton Abbot.



Danish Scurvygrass *Cochlearia danica* by the A38 at Chudleigh.

Urban verges can be equally interesting. Lesser Chickweed *Stellaria pallida* is a frequent pavement weed at Exmouth, Teignmouth and around Torbay, while regularly cut verges sometimes hold Knotted Hedge-parsley *Torilis nodosa*. In Newton Abbot the legacy of shoddy plants from the woollen mill at Bradley includes Annual Buttonweed *Cotula australis* first recorded in 1957. Two *Polypogon* species, Water Bent *P. viridis* and Annual Beard-grass *P. monspeliensis* are now common and spreading. One of the most notable urban verges is in Torquay at Ilsham Marine Drive where Wild Clary *Salvia verbenaca* is locally common. Close by, on a very shortly mown and freely draining verge, there is a fine population of Hairy-fruited Cornsalad *Valerianella eriocarpa* together with over 70 other species including Corn Parsley *Petroselinum segetum* and Musk Stork's-bill *Erodium moschatum*. More recently the effects of changes to the management programmes of grass verges and pavements, the result of challenging reductions to local authority budgets, can already be seen. Verge cutting has been reduced to a minimum and only sightlines on bends and at junctions are now cut on a regular basis for safety reasons. In urban areas councils have also reduced the use of herbicide sprays on weeds in gutters and on pavements. The effects on urban verges are already noticeable where some are completely neglected whilst some householders manage the verges outside their homes rather like lawns. This mix of long and short grass may be beneficial for biodiversity in the longer term. The enrichment of pavement weed floras in towns and cities can also be seen. Traditional species can be abundant and have been joined by annual garden plants such as Petunias and Violas spreading from gardens and floral displays.

As a result of salt application in winter, Danish Scurvygrass *Cochlearia danica* is now abundant by the M5, A30 and A38 where it lines the central reservation and hard shoulders of these roads over many miles. It is spreading to single carriageway roads close to these major arteries where conditions are suitable. The inland distribution of Common Scurvygrass *C. officinalis*, locally common along roadside banks and verges in Northwest Devon, has little to do with winter applications of salt though in South Devon it does occur in a few places south of Exeter along the central reservation of the A38. In South Devon Buck's-horn Plantain *Plantago coronopus* is locally common inland but simply occupies open, freely draining sites, including roadsides, but is not related to salt application. Lesser Sea-spurrey *Spergularia marina* and Reflexed Saltmarsh-grass *Puccinellia distans* have been found near Sampford Peverell by Junction 27 of the M5 but not elsewhere. This may not reflect the actual distribution because of the difficulty of recording in such places. Nevertheless, they have not been found in the vicinity of other junctions.

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