

East Devon Pebblebed Heaths

The East Devon Pebblebed Heaths comprise an extensive area of heathland covering about 1,400 ha southeast of Exeter and lie within the East Devon Area of Outstanding Natural Beauty. They form the largest block of lowland heath in Devon and are of great conservation significance. As such, parts of the heath amounting to 1,135 ha were notified as a Site of Special Scientific Interest (SSSI) between 1952 and 1986 (English Nature 1986a). The Pebblebed Heaths are also of European wildlife importance with 1,119.4 ha designated as a Special Area of Conservation (SAC) under the Habitats Directive in 1996 as they are considered to be one of the best areas in the UK for north Atlantic wet heath and European dry heath, and for populations of Southern Damselfly (JNCC 2015a). In addition the area is designated as a Special Protection Area (SPA) under the Birds Directive as it supports significant proportions of the UK populations of breeding Nightjar and Dartford Warbler.

A significant feature of the site is the diversity of heathland and associated communities, resulting from its large area and the range of substrate and topography (*ibid.*). The core area of the Heaths comprises (south to north): Dalditch Common, Withycombe Common, East Budleigh Common, Lymptone Common, Bicton Common, Woodbury Common, Colaton Raleigh Common, Hawkerland, Harpford Common and Aylesbeare Common. However, a number of outlying areas also exist as at Venn Ottery.

The Heaths overlie Triassic Bunter Pebblebeds, with some New Red Sandstone and Permian Marls. These form a prominent escarpment running some 6 km northwards from Budleigh Salterton towards Ottery St Mary, with an altitude range of 70 m to 176 m. They extend some 1.2 km east to west at their widest. The westerly scarp is steep and the majority of the Heaths occur on the gentle easterly dip slope, which has numerous shallow valleys. The quartzite pebbles, which characterise the Pebblebeds, were deposited at the beginning of the Triassic period, about 230 million years ago (mya), in the bed of a great river flowing through a desert.



A mire with Common Cottongrass *Eriophorum angustifolium* on Colaton Raleigh Common.

When the river ceased to flow these deposits were first covered by sand and then by later Jurassic and Cretaceous deposits. Following earth movements during the Cenozoic (20 mya) and erosion, some of these deposits are now exposed.

The majority of the Pebblebed Heaths have freely-draining, very acid, sandy and loamy soils with very low fertility. They include areas of more fertile brown earths, humic ranker, peaty gleys, skeletal peat and light brown mineral soils (Prosser & Wallace 2005). While the soils are generally acid and infertile, the easterly flowing streams, tributaries of the River Otter, and associated flushes are often base-rich issuing from the underlying Permian sandstones and mudstones (Underhill-Day 2009).

The Neolithic period saw the beginnings of woodland clearance on the then wooded Pebblebeds, with settlement and use continuing through the Bronze Age, initially along the springs and streams on the fringes of the Commons. The primary use of the Commons would have been for hunting, gathering and grazing domesticated livestock with the vegetation becoming more open and 'heath-like' over the centuries. In the more recent past the Heaths were still providing an important source of bracken for animal bedding, small wood and furze for fuel, sand and gravel for building and heather for thatching. They were, however, most valuable as rough grazing, principally for sheep, maintained in part by burning, like much of Dartmoor today. These activities have continued to preserve the open character of the Commons and created a mosaic of vegetation ideal for many types of wildlife. In contrast to surrounding areas, the thin dry gravelly soils of the Commons had little value for arable crops (Tilley 2010).

The Commons have been used for military exercises and training from the Napoleonic wars, through two world wars until the present day with the Royal Marines now using the land extensively for commando

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training. Historical Ministry of Defence features include a decoy runway, small slit trenches, rifle ranges and the remains of a large camp at East Budleigh, although this is now in a ruinous state with the former structures reduced to a platform base.

The most important of the many historic sites of archaeological value on the Pebblebed Heaths is the Scheduled Monument of Woodbury Castle Iron Age Hillfort. In addition there are 10 identified Scheduled Monument Barrows and Cairns and 21 unscheduled Barrows/Cairns. The Heaths are also rich in agricultural, boundary and routeway features dating back to the post-medieval period.

The Heaths are important representatives of the inland Atlantic-climate, lowland heathlands of Britain and north-west Europe. There have been a number of studies of the ecology and vegetation of the Heaths. Ivimey-Cook, Proctor & Rowland (1975) describe the communities of Aylesbeare Common, using association analysis. This study predated the National Vegetation Classification (NVC), but a survey of the NVC communities (Rodwell 1991) of Colaton Raleigh Common, Bicton Common and Hawkerland was undertaken in 2006 (Anon 2006). This also emphasised the existence of dry/humid heath, *Ulex gallii*-*Agrostis curtisii* Western Gorse-Bristle Bent (H4a-d), and *Erica tetralix*-*Sphagnum compactum* Cross-leaved Heath-Compact Bog-moss wet heath (M16a-c) across these areas, with an additional 37 NVC mire, woodland and grassland communities. The SAC selection is based on the presence of both Northern Atlantic wet heath (including good examples of M16 wet heath) occupying the lower lying areas, and extensive areas of European dry heath (represented by H4 lowland dry heath) on the higher parts of the Commons. Lowland heaths such as these are now a rare habitat, with the major part of their area having been lost in the last 200 years, and, despite the recognition of their importance, they still face threats today. Southern Britain contains about one fifth of the total area of lowland heath in Europe (JNCC 2015b).



Dry heath on Bicton Common.

Ivimey-Cook *et al.* recognised two sharply delineated dry plant communities, dry heath and Bracken *Pteridium aquilinum* / scrub communities; and three intergrading wet plant communities, wet heath and shallow *Sphagnum* bog, calcareous Black Bog-rush *Schoenus nigricans* flushes and a very variable community dominated by Purple Moor-grass *Molinia caerulea*. The heaths are characterised by dwarf-shrub species, Heather *Calluna vulgaris*, with Bell Heather *E. cinerea* on the higher drier areas, and Cross-leaved Heath *Erica tetralix* in the shallow valleys. Western Gorse *Ulex gallii* and Bristle Bent *Agrostis curtisii* are associated with *E. cinerea* on the dry heaths, while *M. caerulea* is the characteristic grass of the wetter areas. In the drier parts there are substantial areas of *Pteridium aquilinum* and scrub with Bramble *Rubus fruticosus* agg., Birches *Betula* spp. and scattered Pines *Pinus* spp. These communities have the potential to invade the heathy areas in the absence of grazing or other appropriate management

The wet heath on the valley sides, together with the base-rich flushes and the valley mire on the valley floors, generally support a richer and more diverse vegetation than the dry heath on the higher areas. In addition to *E. tetralix*, characteristic species are Sharp-flowered Rush *Juncus acutiflorus*, Common Yellow-sedge *Carex demissa*, Meadow Thistle *Cirsium dissectum*, Lousewort *Pedicularis sylvatica* and Heath Spotted-orchid *Dactylorhiza maculata* subsp. *ericetorum*. Other species associated with the wetter areas are Common Cottongrass *Eriophorum angustifolium*, Bog Asphodel *Narthecium ossifragum* and Bog Pimpernel *Anagallis tenella*. The *S. nigricans* flushes support Tawny Sedge *C. hostiana*, Carnation Sedge *C. panicea* and Devil's-bit Scabious *Succisa pratensis*. Where scrub develops in these wetter areas, mainly on the valley floors, it consists of Willows *Salix* spp. (English Nature 1986a).

Marsh Clubmoss *Lycopodiella inundata*, first recorded on Woodbury Common in 1784, was once known from several of the Commons, but had disappeared by 1973. There are no records from any of the Commons since



Red Ruby Devon cow grazing on Hawkerland Common.

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1977 when it was reported on Aylesbeare Common. Another very rare species, Brown Beak-sedge *Rhynchospora fusca*, was recorded on Aylesbeare Common in 1955 and on Bicton Common in 1968 and 1983 but not since. White Beak-sedge *R. alba* is widespread and locally common.

Amongst the less common orchids, Heath Fragrant-orchid *Gymnadenia borealis* may have been more widespread in the past but is currently known only from Colaton Raleigh Common where it may be restricted to one location. Lesser Butterfly-orchid *Platanthera bifolia* was last reported in 1980 and may have gone altogether. Early Marsh-orchid *Dactylorhiza incarnata* subsp. *pulchella* is locally frequent on Bicton and Colaton Raleigh Commons. There are also records from Venn Ottery and Aylesbeare Commons dating back to the 1980s but it has not been reported more recently.

There appears to be plenty of good habitat for both Allseed *Radiola linoides* and Chaffweed *Centunculus minimus*, but both are surprisingly rare. Since they are often to be found growing together it is always worth searching for the other. *Centunculus minimus* was first noticed on the Commons in 1979 when it was found at Aylesbeare Common and can still be seen there. More recently a few plants were found on Withycombe Raleigh Common. While there are a few more records of *R. linoides*, it has been seen in only two places recently. At Aylesbeare it may be locally common at its one known location, where it does grow together with *C. minimus*. A few small plants were found recently at Harpford Common.

Two species, subject to recent BSBI Threatened Plant Project (TPP) surveys, have strongholds on the Commons. Pale Dog-violet *Viola lactea* needs some level of disturbance in order to flourish and has been seen at a number of locations, both on the open heath and on roadsides. Dodder *Cuscuta epithymum* is another species which responds to disturbance on heathland sites where *Ulex gallii* is the favoured host. It has a preference for the mown areas on the edges of tracks and on firebreaks and can be abundant on regenerating heath following fires. Lesser Water-plantain *Baldellia ranunculoides*, recorded from three parishes including the Commons in the *Flora*, was found in a ditch on Aylesbeare Common in 1995. Since then the site had become overgrown but was cleared during the winter of 2011 and the plant could re-appear. Petty Whin *Genista anglica* is uncommon and is only known from a single site on Aylesbeare Common.

Amongst insectivorous species, Pale Butterwort *Pinguicula lusitanica* and Round-leaved Sundew *Drosera rotundifolia* are both widespread across the Commons. Oblong-leaved Sundew *D. intermedia* is also widespread and can be locally abundant. It is not entirely clear if Great Sundew *D. anglica* ever occurred on the Commons (*Flora*) but it seems unlikely. The alien Large-flowered Butterwort *P. grandiflora* was first reported on Aylesbeare Common in 1958 but seems to have gone by the early 1980s. It remains to be seen if the pitcher-plant, Trumpets *Sarracenia flava*, well established on Colaton Raleigh Common, when reported in 1999, will persist in the longer term, though it was still present in 2012.

The majority of the Pebblebed Heaths are now owned by Clinton Devon Estates who lease substantial areas at Aylesbeare and Harpford to the Royal Society for the Protection of Birds (RSPB) and a large quarry at Blackhill to Bardon Aggregates. Smaller areas are owned by the Nutwell Estate, East Devon District Council, the RSPB and Devon Wildlife Trust. Although privately owned the Pebblebed Heaths are designated as common land, with a right of public access ensured under the Countryside and Rights of Way Act 2000.

The bulk of the Heaths are managed for conservation and recreation by the Pebblebed Heaths Conservation Trust in association with Natural England (Pebblebed Heaths Conservation Trust 2015). The Heathland Management Plan adopted by the Trust follows the range of criteria set out by Natural England for achieving favourable condition of lowland heathland. Management includes burning, mowing, scrub clearance and the re-introduction of livestock and essentially tries to replicate historic management techniques. The primary aims of management include ensuring a mosaic of different ages and structures across the vegetation of the Heaths for the benefit of the associated flora and fauna and promoting public access and enjoyment of the wildlife.

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