



UK Biodiversity Action Plan Priority Habitat Descriptions

Maritime Cliff and Slopes

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The definition of this habitat remains unchanged from the pre-existing Habitat Action Plan (<http://tna.europarchive.org/20110303145238/http://www.ukbap.org.uk/UKPlans.aspx?ID=27>), a summary of which appears below.

Maritime cliffs and slopes comprise sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion. There appears to be no generally accepted definition of the minimum height or angle of slope which constitutes a cliff, but the zone defined as cliff-top (also covered in this plan) should extend landward to at least the limit of maritime influence (i.e. limit of salt spray deposition), which in some exposed situations may continue for up to 500m inland. This plan may therefore encompass entire islands or headlands, depending on their size. On the seaward side, the plan extends to the limit of the supralittoral zone and so includes the splash zone lichens and other species occupying this habitat. Approximately 4,000km of the UK coastline has been classified as cliff.

Cliff profiles vary with the nature of the rocks forming them and with the geomorphology of the adjoining land. While most maritime cliffs have been formed by coastal erosion, steep slopes falling to the sea in mountainous districts may have been formed long before the sea level reached its present position; in such cases only the lower part of the slope will have been steepened by the sea.

Maritime cliffs can broadly be classified as 'hard cliffs' or 'soft cliffs', though in practice there are a number of intermediate types. Hard cliffs are vertical or steeply sloping; they are inclined to support few higher plants other than on ledges and in crevices or where a break in slope allows soil to accumulate. They tend to be formed of rocks resistant to weathering, such as granite, sandstone and limestone, but can be formed of softer rocks, such as chalk, which erode to a vertical profile. Soft cliffs are formed in less resistant rocks such as shales or in unconsolidated materials such as boulder clay; being unstable they often form less steep slopes and are therefore more easily colonised by vegetation. Soft cliffs are subject to frequent slumping and landslips, particularly where water percolates into the rock and reduces its effective shear strength.

The vegetation of maritime cliff and slopes varies according to several factors: the extent of exposure to wind and salt spray, the chemistry of the underlying rock, the water content and stability of the substrate and, on soft cliffs, the time elapsed since the last movement event. Cliff-top habitats can also be transformed by soil erosion processes.

Vegetation of a strictly maritime nature occurs where exposure to the waves and winds is at its greatest. In the UK, such conditions are found principally on the northern and south-western coasts. In extreme conditions, such as on the Isle of Lewis, saltmarsh vegetation can occur on cliff-tops. In other areas, where cliffs occur adjacent to sand dunes, sufficient wind-blown sand can accumulate on the cliff-tops to allow cliff-top dune vegetation to develop (perched dunes). On exposed hard cliffs giving little foothold to higher plants, lichens are often the predominant vegetation. Ledges on such cliffs support a specialised flora with species such as rock samphire *Crithmum maritimum* and rock sea spurrey *Spergularia rupicola* in the south, and Scots lovage *Ligusticum scoticum* in the north. Seabird nesting ledges enriched by guano support a particular community characterised by oraches *Atriplex* spp and sea beet *Beta vulgaris* ssp *maritima*. Maritime grasslands occur on cliffs and slopes in less severely exposed locations; a maritime form of red fescue *Festuca rubra* is a constant component, together with maritime species such as thrift *Armeria maritima*, sea plantain *Plantago maritima*, buck's-horn plantain *P. coronopus* and sea carrot *Daucus carota* ssp *gummifer*. Species of inland grasslands which also commonly occur in

maritime grasslands include ribwort plantain *Plantago lanceolata*, bird's-foot trefoil *Lotus corniculatus*, common restharrow *Ononis repens* and several species of grass.

On cliffs and slopes which are more sheltered from the prevailing winds and salt spray, the vegetation communities are more similar to those found inland, and are increasingly influenced by the chemistry of the substrate. Calcareous grassland communities with a few maritime specialist species occur on sheltered chalk or limestone cliffs. The upper sections and cliff-tops of hard cliffs on acidic rocks may support maritime heaths characterised by heather *Calluna vulgaris*. Mobile soft cliffs support a wide range of vegetation from pioneer communities on freshly exposed faces through ruderal and grassland communities to scrub and woodland. Wet flush vegetation commonly occurs on soft cliffs where groundwater issues as seepage.

Maritime cliffs are often significant for their populations of breeding seabirds, many of which are of international importance. Some 70% of the international population of gannet *Morus bassanus* and important proportions of the European populations of shag *Phalacrocorax aristotelis*, razorbill *Alca torda* and guillemot *Uria aalge* nest colonially on cliff ledges whilst significant populations of Manx shearwater *Puffinus puffinus* and puffins *Fratercula arctica* nest in burrows in turf on cliff-tops or slopes. Coastal cliffs are also important for crag nesting species, such as raven *Corvus corax* and peregrine *Falco peregrinus*, and cliff-top vegetation may provide important feeding grounds for chough *Pyrrhocorax pyrrhocorax*.

Hard cliffs are widely distributed around the more exposed coasts of the UK, occurring principally in south-west and south-east England (the latter area having the bulk of the 'hard' chalk cliffs), in north-west and south-west Wales, in western and northern Scotland and on the north coast of Northern Ireland. Soft cliffs are more restricted, occurring mainly on the east and central south coasts of England and in Cardigan Bay and north-west Wales. There are also examples on the coasts of Fife and Skye in Scotland and Antrim in Northern Ireland.

Soft cliffs provide important breeding sites for sand martins *Riparia riparia*, which burrow into soft faces exposed by recent slippages, but they are particularly important for invertebrates as they provide a suite of conditions which are rarely found together in other habitats. The combination of friable soils, hot substrates and open conditions maintained by cliff slippages offer a continuity of otherwise very restricted microhabitats and these support many rare invertebrates which are confined to such sites. These include the ground beetle *Cicindela germanica*, the weevil *Baris analis*, the shore bug *Saldula arenicola*, and the Glanville fritillary *Melitaea cinxia*.

Seepages, springs and pools are a feature of many soft cliff sites and these provide the wet muds required by many species of solitary bees and wasps for nest building. They also support rich assemblages of other invertebrates including many rare species which are confined to this habitat. These include the craneflies *Gonomyia bradleyi* and *Helius hispanicus*, and the water beetle *Sphaerius acaroides*.

The hard coastal cliffs of west Britain support a western oceanic invertebrate assemblage of European significance. Important species include the snail *Ponentina subvirescens*, weevils such as the highly restricted *Cathormiocerus attaphilus*, and moths such as Barrett's marbled coronet *Hadena luteago*. Other species are confined to certain rock types. For example, the fiery clearwing *Bembecia chrysidiformis* is restricted to the chalk cliffs of Kent and Sussex, and the water beetle *Ochthebius poweri* occurs predominantly in small seepages on red sandstone cliff faces in south-west England and south Wales.

The supralittoral zone represents the lowest belt of terrestrial vegetation on maritime cliffs and is usually exemplified by a zone of orange and grey maritime lichens. The zone tends to be dominated by species such as *Caloplaca marina*, *Ramalina siliquosa* and *Verrucaria*

maura, but may also include uncommon species such as *Roccella filiformis* and *R. phycopsis*.