

COUNTY: DEVON SITE NAME: MARSLAND TO CLOVELLY COAST

DISTRICT: TORRIDGE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981, (as amended).

Local Planning Authority: DEVON COUNTY COUNCIL, Torridge District Council

National Grid Reference: SS 212175 to Area: 951.74 (ha.) 2351.75 (ac.)
SS 315254

Ordnance Survey Sheet 1:50,000: 190 1:10,000: SS 22 SE, NE, SW, NW; SS
21 NW, NE; 32 NW, SW

Date Notified (Under 1949 Act): 1976 Date of Last Revision: 1976

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:

Part of a Nature Conservation Review Site, and contiguous with the Steeple Point to Marsland Mouth SSSI. Also contains four Geological Review sites (Hartland Quay, Hartland Point, Welcombe Mouth and Clovelly to Mouth Mill). This revision combines Marsland to Blackchurch Rock SSSI with Brownsham to Clovelly SSSI, with boundary amendments by extension and deletion. Lies within North Devon Area of Outstanding Beauty, Hartland Heritage Coast, County Structure Plan Coastal Preservation Area and Nature Conservation Zone. Part owned by the National Trust; part of that managed as a nature reserve by the Devon Wildlife Trust, also part owned by the Royal Society for Nature Conservation.

Description and Reasons for Notification:

The site is nationally important for its geological, geomorphological and biological interest. The cliffs, clifftops and valleys carry a wide range of habitats including extensive areas of ancient woodland and parkland which support nationally important lichen communities, and a range of species-rich grassland, heath and scrub communities. In addition, the site supports diverse assemblages of invertebrates and breeding birds.

The Marsland to Clovelly coast extends some 19.5km from Marsland Mouth to Clovelly along the north Devon Coast. The cliffs are very steep rising to 110m in places above the rocks of the intertidal wave-cut platform. Inland, several streams have cut deep sheltered valleys and these provide a wide variety of aspects and conditions for plant growth. There is considerable variety in soil type.

Geology

The coastline shows unrivalled exposures through Upper Carboniferous rocks belonging to the Crackington and Bude formations.

The sediments include shales and sandstones, the latter of distal turbidite origin. Well developed marker horizons yield goniatites indicating that the succession spans the Namurian to Westphalian boundary. These horizons are broadly equivalent to the '*Gastrioceras*' *sigma*, '*G*' *cancellatum*, '*G*' *cumbriense*, '*G*' *listeri* and '*G*' *amaliae* marine bands of other regions. The coastal sections include essential type and reference localities for a significant part of the Upper Carboniferous Succession of South West England.

The coastal cliffs between Clovelly and Mouth Mill provide exposures of the Upper Carboniferous Crackington Formation, affected by large-scale folds formed during the Variscan Orogeny. Folds are marked by the outcrop of shale bands within the predominantly sandstone sequence. A series of large asymmetric folds are developed with horizontal axes, inclined or overturned to the north. The northern limbs are vertical or overturned and southern limbs dip moderately to the south. Successively lower beds are exposed south-eastwards towards Clovelly, indicating a fold envelope dipping northwards. This section provides a valuable comparison with the Hartland Point section to the west; the Wood Rock anticline is a major structure, comparable to the syncline at Hartland Point. Refolding by small folds plunging 15--23 degrees to the east complicate the structure. This refolding has been interpreted as the overturning of the main folds, in part a late feature, resulting from northerly directed simple shear on the flank of the Culm Synclinorium.

Welcombe Mouth provides exposures of outstanding examples of the anomalous recumbent folds affecting the more normal upright folds on the north Cornwall-Devon coast. The rocks involved belong to the upper part of the Crackington Formation. The apex of the rather open anticline at the northern end of the site is refolded into a recumbent chevron fold facing south and another much tighter anticline to the south of the access path is also refolded at its crest by a south facing fold. The cleavage associated with the more upright fold is tipped over into a relatively flat-lying orientation. The origin of these structures was originally attributed to gravitational flow down the flanks of major folds, presumably at a high crustal level. It has more recently been suggested that they were formed by a southerly simple shear deformation connected with the back-thrusting which took place in the area to the south.

The area around Hartland Point is composed of the lower part of the Bude Formation of the Upper Carboniferous. These beds at the point are folded into a major asymmetrical syncline, with an amplitude of about 700 metres. The northern limb of the structure dips south at 33 degrees and the southern limb dips north at about 80 degrees. Locally, beds on the higher part of the southern limb become inverted due to collapse northwards. To the east of Hartland Point a NW-SE trending, dextral wrench fault passes through Barley Bay and displaces the axis of the syncline. On the east side of the bay the main structure continues but additional folds are superimposed and the easterly plunge becomes less steep. An upright, parallel anticlinal fold developed in the centre of the main syncline is exposed on the east side of Barley Bay. These very large folds are well displayed in profile, and in plan on the foreshore sections. This locality provides an excellent demonstration of the nature of the folds produced during the Variscan Orogeny near the northern margin of the Culm Synclinorium.

The site is important for geomorphology, in particular for relationships between coastal and fluvial features. It contains fine examples of hog's back cliffs and shore platforms and demonstrates clear relationships between cliff forms, platform development and lithological variations. Further, it is also noted for a remarkable set of former valleys which have been truncated by retreat of the cliff-line so that their floors now lie well above present sea-level. Unlike similarly truncated streams in south west Isle of Wight, those in the Hartland Quay area have generally been unable to erode valleys to sea-level and so reach the shore via waterfalls. In some cases the streams have also cut gorges with waterfalls.

Coastal Slopes

Cliff top grassland communities are characterised by Thrift *Armeria maritima* and Red Fescue *Festuca rubra*, with Sea Campion *Silene maritima*, Buckshorn Plantain *Plantago coronopus*, Kidney Vetch *Anthyllis vulneraria* here showing an unusual range of colour forms, and Wild Thyme *Thymus praecox*. The richest and most extensive grassland is sheltered by St Catherine's Tor, with Common Bird's-foot-

trefoil *Lotus corniculatus*, English Stonecrop *Sedum anglicum* on walls and outcrops, Burnet Rose *Rosa pimpinellifolia*, Carline Thistle *Carlina vulgaris* and Spring Squill *Scilla verna*. The nationally scarce Rock Sea-lavender *Limonium binervosum* and Portland Spurge *Euphorbia portlandica* occur on the cliffs.

In places the grassland gives way to heathland, with Heather *Calluna vulgaris*, Bell Heather *Erica cinerea* and Western Gorse *Ulex gallii*. Near Hartland Point the heathland is particularly rich in lichens: *Lecidea aeruginosa* and *L. oligotropha* are noteworthy and 26 *Cladonia* species occur, many in abundance.

Further inland Bracken *Pteridium aquilinum* and Bramble *Rubus fruticosus* become common, and scrub appears. The main scrub species are Blackthorn *Prunus spinosa*, Wild Privet *Ligustrum vulgare*, Hazel *Corylus avellana*, with Honeysuckle *Lonicera periclymenum*, Ivy *Hedera helix* and Wild Madder *Ruba peregrina*, and in the herb layer Primrose *Primula vulgaris*, Wood Sage *Teucrium scorodonia* and Bluebell *Hyacinthoides non-scripta*, and Gorse *Ulex europaeus*. The nationally scarce Wavy St John's-wort *Hypericum undulatum* and Bastard Balm *Melittis melissophyllum* are present.

Woods and Parkland

Sessile Oak *Quercus petraea* is the dominant tree in much of the semi-natural woodland and is the main tree species of Clovelly Deer Park. Within the woods, Beech *Fagus sylvatica*, Ash *Fraxinus excelsior* and Sycamore *Acer pseudoplatanus* are locally abundant with an understorey Hazel *Corylus avellana*, Holly *Ilex aquifolium* and Hawthorn *Crataegus monogyna*. Alder *Alnus glutinosa* and Willows *Salix* spp. occur along the streamsides and wet valley bottoms. The rare Devon Whitebeam *Sorbus devoniensis* is present. Much of the ground flora is dominated by Great Wood-rush *Luzula sylvatica*, but some mineral rich soils permit the growth of Bugle *Ajuga reptans*, Sanicle *Sanicula europaea* and Woodruff *Galium odoratum*. Ferns are abundant, including Hay-scented Buckler-fern *Dryopteris aemula*. The rich bryophyte flora contains several rare Western species, such as *Fissidens ceticus*, *F. curnowii*, *Plagiochila punctata*, *P. spinulosa*, *Nowellia curvifolia* and *Leucodon scluroides*.

With the exposed sea cliffs supporting very stunted, well-lit Oak trees, the sheltered moist woods of the valleys, and the old age of the parkland and its trees, the site as a whole provides a wide variety of conditions that have enabled a very rich and diverse lichen flora to develop. Over 120 species have been recorded, including many rare western species and old-forest indicators. Among the rarer species are *Bombliospora pachycarpa*, *Cetrelia olivetorum*, *Tomasellia lactea*, *Catillaria sphaeroides*, *Haematomma elatinum*, *Lobaria amplissima*, *L. laetevirens*, *L. scrobiculata*, *L. pulmonaria*, *Nephroma laevigatum*, *Pannaria pityrea*, *P. rubiginosa*, *Peltigera collina*, *Parmeliella atlantica*, *P. jamesii*, *P. corallinoides*, *Sticta dufourii* and *Thelopsis rubella*. Also of importance are some eastern species almost or at their western limits in Britain: *Opegrapha lyncea*, *O. prosodea* and *Pertusaria hemispherica*. The site also includes the type locality for *Refractohilum galligenum* para-symbiotic on *Neophroma laevigatum*.

Several species-rich wet pastures typical of Culm Grassland occur within the woodland at Brownsham, with Rushes *Juncus* spp. dominant over large areas. Sedges, including Carnation Sedge *Carex panicea*, Tawny Sedge *C. hostiana* and Common Sedge *C. nigra* occur widely and Heather, Cross-leaved Heath *Erica tetralix*, Lousewort *Pedicularis sylvatica* and Meadow Thistle *Cirsium dissectum* are locally abundant. Lesser Butterfly-orchid *Platanthera bifolia*, the nationally scarce Yellow Bartsia *Parentucellia viscosa*, Lady's-mantle *Alchemilla vulgaris*, Heath Spotted-orchid *Dactylorhiza maculata* and Sneezewort *Achillea ptarmica* are also present.

Fauna

A large number of insect species occur on the site, including many butterflies: including the nationally rare High Brown Fritillary *Argynnis cydippe*, the nationally scarce White Letter Hairstreak *Strymonidia w-album* and Wood White *Leptidea sinapis*. The nationally rare Scarce Blackneck Moth *Lygephila cracca*, nationally scarce woodlouse *Halophiloscia couchi* and Bog Bush Cricket *Metrioptera brachyptera* also occur here. In addition there are a number of nationally scarce beetles including: *Hypocaccus rugifrons*, *Longitarsus plantagomaritimus*, *Chalaenius nigricornis*, *Judolia cerambyciformis*, *Sitona cambricus*, *Hypera-fuscocinera* and *Acalles roboris*.

The site also supports over 70 species of breeding birds. The coast is a traditional breeding area for the Peregrine *Falco peregrinus*, Kestrel *F. tinnunculus*, Raven *Corvus corax* and Fulmar *Fulmarus glacialis*, while Gulls *Larus* spp. and Rock pipit *Anthus spinoletta* also breed on the cliffs.

Dormouse *Muscardinus avellanarius* is present within Marsland Mouth Woods.