

SITE

Name: West Exmoor Coast and the Valley of the Rocks

Parish: Lynton and Martinhoe

Local Authority: [Exmoor National Park](#)

National Grid Ref: SS 619 486 - 715 501

OS Sheets: 1:50k, 180, 1:10k, SS64 NW, NE, 74 NW, 75 SW

Locality Description: Approximately 10 km of northern Devon (Exmoor) coast to the west of Lynton, with a key locality at the Valley of Rocks (at SS 705 497).

Nature and Status of Site: This extensive coastal site includes a range of geological and geomorphological interests through its cliff, quarry and foreshore exposures and its crags, clifftops and coastal valleys. The area is a [Site of Special Scientific Interest](#) (SSSI) for its geological and wildlife interest.

Summary of Geological / Geomorphological Interest: This stretch of the Exmoor coast (and its coastal valleys) contains three key geological localities. The Valley of Rocks contains excellent exposures of the Lynton Beds, which are fossiliferous. They are, stratigraphically, the oldest Devonian units in the North Devon – Somerset area. The Valley of Rocks also displays classic landforms, notably a dry valley and a range of periglacial features, which have played a focal role in the development of ideas concerning coastal and drainage evolution. Crock Point has important exposures of the Lynton Beds, which have yielded a unique shelly fauna. They enable interpretation of the past ecology of these sediments, establishing for the first time a late Emsian date for the upper horizon of this unit. Hollowbrook, between Heddon's Mouth and Woody Bay, exposes a complete section through the Lynton Beds / Hangman Sandstone Group boundary and displays the transition from a shallow water marine environment to a littoral facies and fixes the position of the southern shoreline of the Old Red Sandstone continent.

Safety Considerations: Care should be taken near the cliff top and around the cliff base. Tide timetables should be consulted if accessing the beach/foreshore exposures. Great care should also be taken on or around the rock formations at the Valley of the Rocks, especially given the presence of loose rock/scree.

Educational Age Groups: Secondary, College/6th Form, University.

Parking and Access: The whole of the site is accessible from the South West Coast Path and the minor road between Lynton and Hunters Inn (partly toll road) and beyond to Holdstone Down. However, opportunities for parking are very restricted and therefore travelling on foot may be the best option. For this reason, a site plan has been provided only for a single key locality at the Valley of Rocks. This is easily accessible from Lynton and there is good parking in the valley itself. The Valley of Rocks is open access land. Other parts of the coastal strip are in the ownership of the National Trust. There are a number of bus services to Lynton operating from nearby towns, including Barnstaple, Ilfracombe and Combe Martin. For timetable details, visit www.traveline.org.uk.

References

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For further sources on Devonian features see Barclay et al. (2005) and on Quaternary features see Campbell et al. (1998) (site report also available via: www.jncc.gov.uk).

Detailed Geology: *Valley of Rocks* (Marine Devonian): Extensive exposures of the Lynton Slates can be seen at this locality, comprising of massive quartzitic sandstones with interbedded finely laminated slates. Heavy cleavage and bioturbation obscures a lot of the lithological details. On the north side of the valley are fossiliferous localities where screes developed around Castle Rock and Rugged Jack (SS 704497 and SS 706499). These provide a fauna dominated by brachiopods with lesser numbers of bivalves, bryozoans and abundant crinoid ossicles. Evans (1980) found the brachiopod fauna to include *Platyorthis triangularis*, *Chonetes sarcinulatus*, *Schelwiebella* sp., *Subcuspidella lateincisa*, *Subcuspidella longieincisa*,

Cryptonella rhenana and *Orbiculoidea* sp.. Whilst this fauna is typical of the Lynton Slates, it does contain species which have not been recorded in any of the localities within the Upper Emsian of Belgium and Germany. The absence of some fauna groups (i.e. rhynchonellids) is striking and it would therefore appear to suggest that a local environmental influence restricted the faunal diversity, allowing the brachiopods to dominate. Evans (1980) suggested that a fresh water influx with clastic sediments from the ORS continent may have been the cause. However, the presence of brachiopods would suggest otherwise. A more probable solution is that the character of the substrate with a high rate of sedimentation allowed the dominance of the brachiopods, whilst accounting for the absence of any corals (Evans 1980).

Valley of Rocks (Quaternary): The coastline between Lynmouth and Woody Bay does not reflect the general multi-faceted cliff profile associated with the North Devon coast and the Valley of Rocks site marks the locality of a dry valley system that has been dissected by marine erosion. Where the Valley meets the sea at Wringcliff Bay, an exposure in the upper part of the cliff reveals 1-1.5m of coarse, angular frost-distributed material overlying a relatively fine-grained head. The southern end of Lee Bay exposes about 28m of Pleistocene deposits resting on a raised rock platform. The basal 10m comprise an interbedded succession of well-rounded beach material and river gravels, which were probably deposited in an intertidal environment.

Various models have been developed to explain the morphology of the site. Simpson (1953) explained the site in terms of river capture by marine erosion as part of an extended lower course of the present East Lyn River. He attempted to relate the extrapolated profile to the heights of the valley remnants and concluded that the East Lyn originally flowed from Lynmouth through the valley, the Lee Abbey Gap, Crock Point and Martinhoe Manor to Heddon's Mouth. The marine capture then occurred in four stages, which progressed eastwards in time from Heddon's Mouth to Lynmouth. In contrast, Stephens (1966) proposed that the valley remnants might have originated as an ice marginal channel in Wolstonian times. During this period, glaciation in the Irish Sea, which entered Devon in the Fremington district, also possibly impinged on the north coast of Exmoor. This created a lake, which overflowed into the Valley of Rocks and when the ice retreated the dammed rivers reverted to their original courses leaving the valley dry.

Electrical resistivity measurements by Dalzell and Durrance (1979) allowed the rock floor profile of the valley to be reconstructed. Their results showed that the thickness of the depth of fill in the valley increases westwards from 27m at the highest point in the valley floor, to 35m at approximately the lowest point. The western end showed surface horizon (3-5m) composed mainly of large boulders with a little fine matrix in between. Further east a fine-grained surface layer, 2-5m thick, was found. Both these layers overlie a 25-32 m thick, fine-grained unit, which represents soliflucted material from the valley sides. This indicates a gradation to a level lower than that of the Lee Abbey Gap, but more in line with Crock Point. This would then suggest that if the valley owed its existence to fluvial erosion and marine dissection, then the East Lyn could not have flowed through the Lee Abbey Gap as suggested by Simpson (1953), but flowed through the Wringcliff Bay Gap around Duty Point to Crock Point. Only one capture by coastal retreat at Lynmouth (during the Ipswichian Interglacial) would have left the entire valley system west of the town dry. The evidence from Dalzell and Durrance (1979) does not really support Stephens' model (1966), as it shows that the remnants represent the earlier presence of more than one valley.

Crock Point (Marine Devonian): The fauna of the Lynton Slates can be examined at several localities, all of which have yielded a consistent but sparse assemblage dominated by brachiopods and bivalves. The quarry above Crock Point shows a

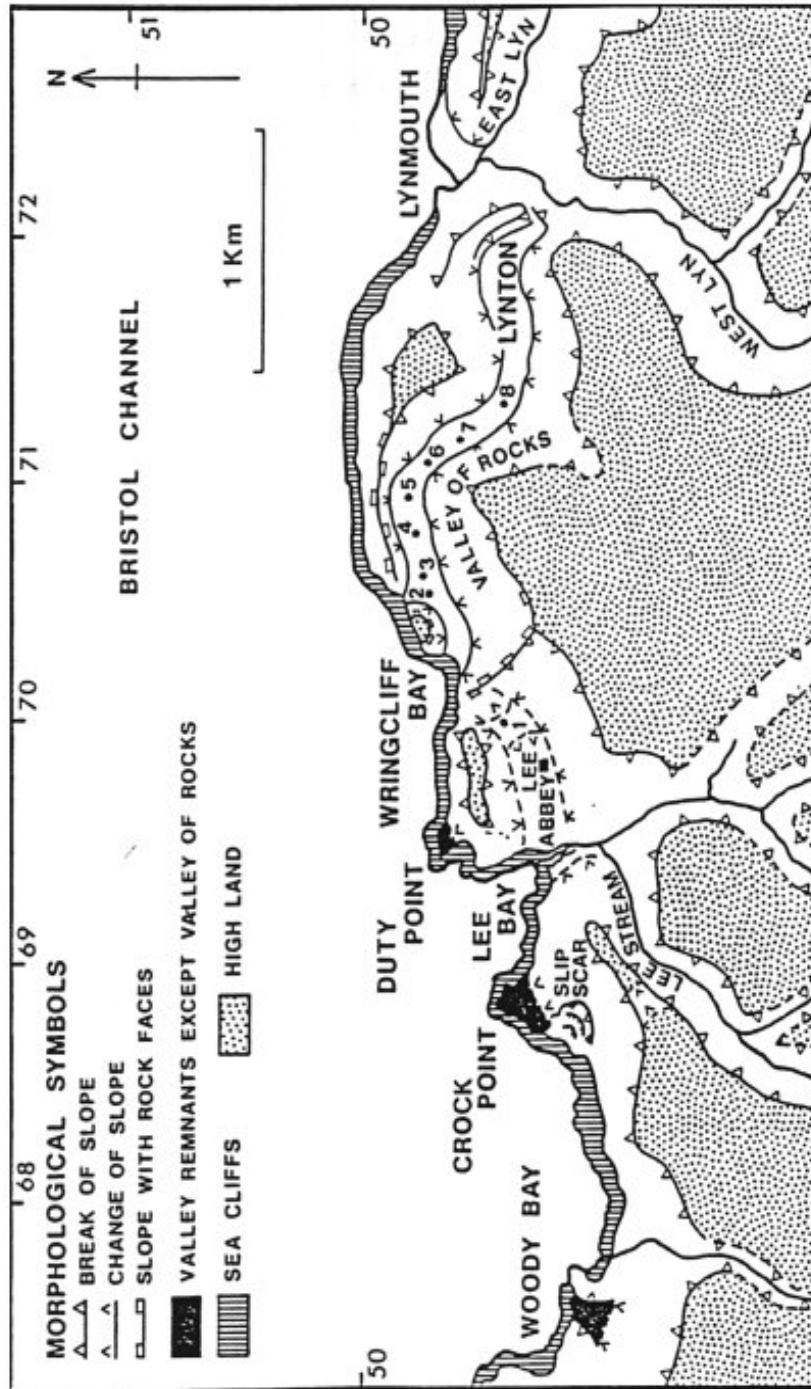
fossil assemblage unlike any other recorded from the Lynton Slates. The fossils lie in a fossiliferous horizon approximately 4m above the quarry floor. Evans (1980) recorded the brachiopods *Euryspirifer paradoxus* (in great abundance) and *Schelwiebella* sp. The high abundance of Bryozoan remains is probably due to better preservation in the fine-grained dominated sediments at this locality. The fossil *Euryspirifer paradoxus* is well known from German localities and is confined to the Upper Emsian. It is thought that this particular fossil assemblage may represent a slightly different environment within the Lynton Slates sea and the establishment of an Upper Emsian is important as previous workers, e.g. House et al (1977), placed the Lynton Slates – Hangman Grits boundary well into the Eifelian.

Crock Point also shows Devonian sediments overlain by a yellowish brown clay, which analysis has shown to be similar to clay produced by weathering of the Lynton Slates. This would suggest that the clay was derived from the underlying rock in temperate weathering conditions, probably during an interglacial period.

Hollowbrook (Non-Marine Devonian): The Lynton Slates comprise grey and dark silty slates with mudstones, siltstones and grey sandstones – towards the top of which, become predominantly beach deposits. Above these sandstone units lie the Hangman Grits. The Lynton Slates have been dated at late Emsian on the basis of the brachiopod fauna (Evans 1980) with the Hangman Grits being the Eifelian in age. The latter beds of quartzitic mudstones are commonly parallel-laminated, with a few cross-bedded intercalations. The boundary between the Lynton Slates and the Hollowbrook Formation represents the transition from shallow marine beds into a littoral facies. The actual boundary is taken where the muddy sandstones (Lynton Slates), containing the trace fossil *Chondrites*, give way to clean quartzitic, littoral sandstones of the Hollowbrook Formation. Elsewhere the boundary corresponds approximately to the disappearance of *Chondrites* and the appearance of the trace fossil *Arenicolites*. The deposition of the Hangman Grits represents the replacement of the marine Rhenish magnafacies by the non-marine Old Red Sandstone magnafacies. These two types of deposition indicate that the Devonian sequence was deposited very close to the margin of the Old Red Sandstone continent and therefore fixes the southerly margin of this continent.

West Exmoor Coast and Woods SSSI

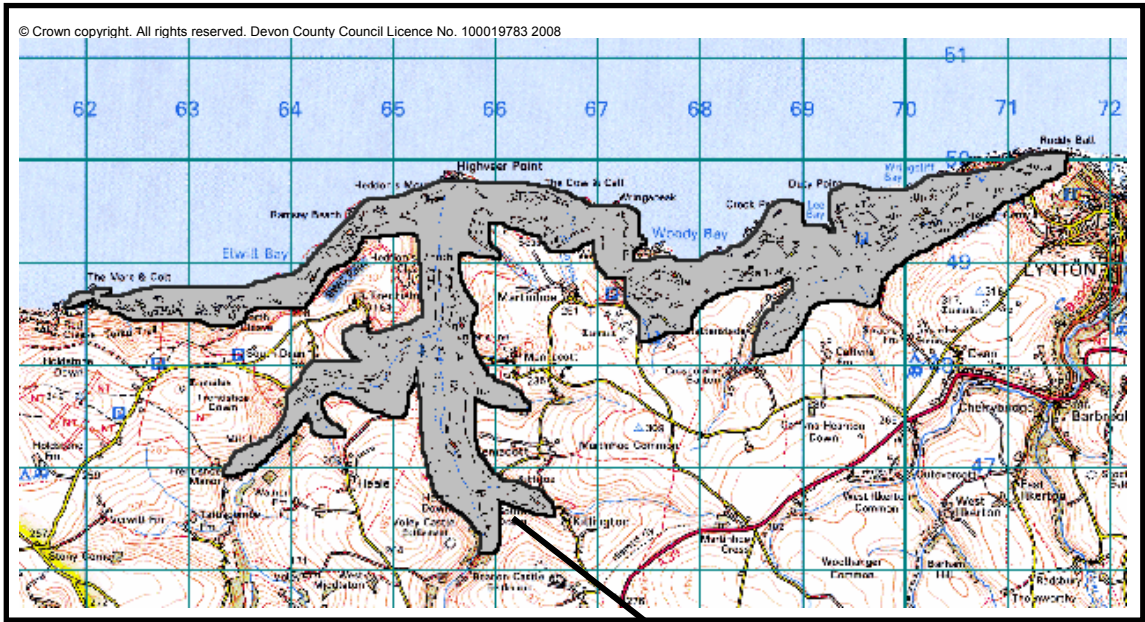
Location Map showing the morphological features between Woody Bay and Lynmouth (from Dalzell and Durrance 1979)



LOCATION PLAN

WEST EXMOOR COAST AND THE VALLEY OF THE ROCKS, SSSI LYNTON, EXMOOR NATIONAL PARK

National Grid Ref: SS 619 486 - 715 501



Scale 1: 65,000



Site locality

10 km of Exmoor
Coast and
associated coastal
valleys to west of

Parking and Access

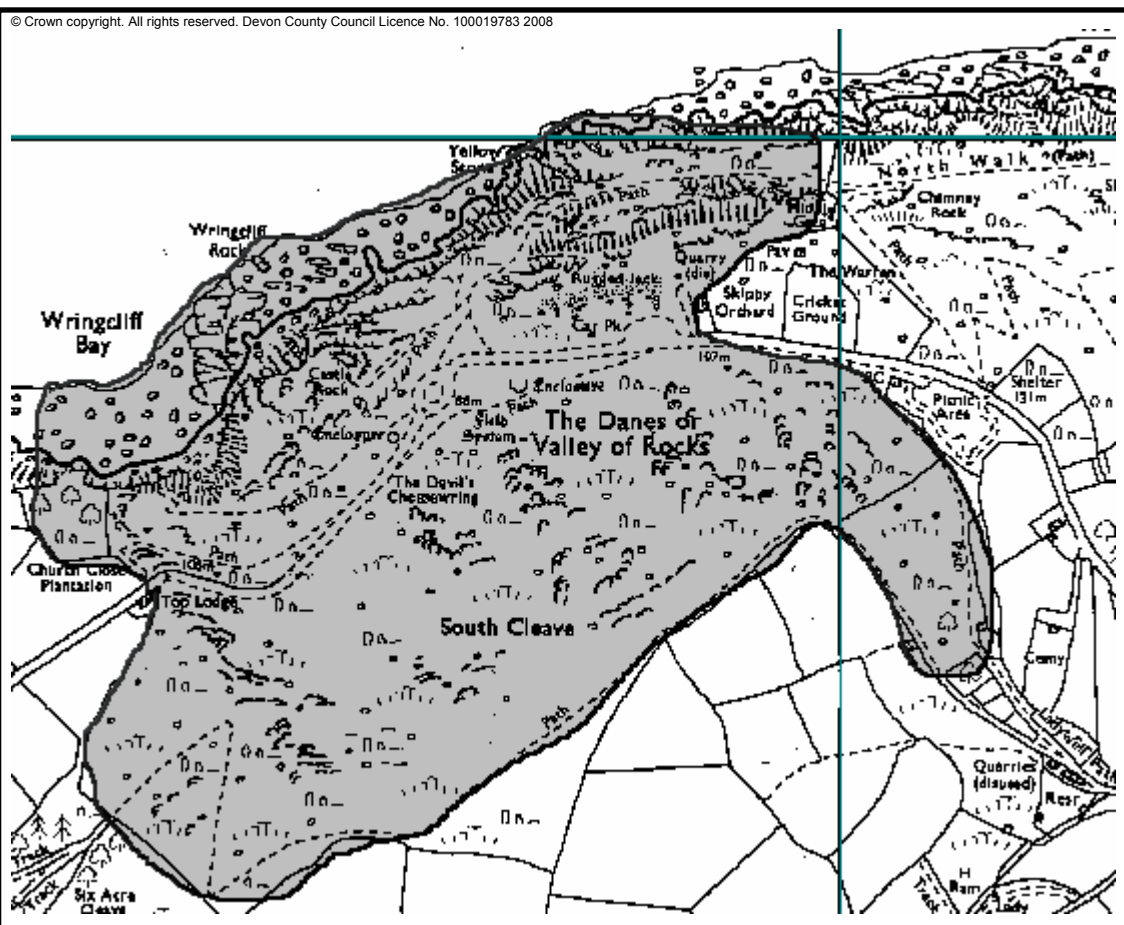
- The whole of the site is accessible from the South West Coast Path and the minor road from Lynton to Hunters Inn (partly Toll Road) and beyond to Holdstone Down. However, opportunities for parking are very restricted. The key geological locality at the Valley of Rocks is easily accessible from Lynton and has car parking available.
- Parking is also available in the National Trust car park in the Heddon Valley, near the Hunter's Inn, which is ideal for the central area of the SSSI.
- There are a number of bus services to Lynton operating from nearby towns, including Barnstaple, Ilfracombe and Combe Martin. For timetable details, visit the [traveline](#) website.

SITE PLAN

WEST EXMOOR COAST AND THE VALLEY OF THE ROCKS

LYNTON, EXMOOR NATIONAL PARK

National Grid Ref: SS 705 497



Key Focal Point

Scale 1: 9,000

Main Points of Interest:

- The Valley of Rocks with excellent exposures of Lynton Beds.
- Displays evidence of marine capture of pre-existing river valley, and of a marginal meltwater channel of Wolstonian age.
- In addition, the association of tors, talus and blockstreams makes this section a locality of considerable importance.

WEST EXMOOR COAST AND THE VALLEY OF THE ROCKS

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Spectacular rock formations in the Valley of the Rocks hanging valley, including tors of Lower Devonian, Lynton Group.

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View of the Valley of the Rocks (on the sky line) from west of Woody Bay. Note continuation of valley system to middle ground, as breached by coastal erosion in several places.

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Heddon's Mouth and valley showing the largest scree systems in Devon
(for further details see Abbot 1991)