

Location & Access:

Dawlish Warren is located in the mouth of the estuary of the river Exe in east Devon.

It can be reached via the A379 road, nine miles to the south of Exeter.

Two car parks are located within a few metres of Dawlish Warren spit, and can be found at SX 978 785 and SX 981 787.

Dawlish Warren is on a regular bus route from Exeter, and can also be reached by train from the city.



Langstone Rock - photo: Paul Berry

Key Geography: Dawlish Warren spit, National Nature reserve, RAMSAR site, Exe estuary, coastal management techniques, including groynes, sea wall, rock armour and gabions.

Description: Dawlish Warren is the name given to a sand spit, beach, golf course and seaside resort located in the mouth of the river Exe in south Devon. The name 'warren' has been used for this place for centuries, as in the past rabbits have been raised here commercially for meat and fur, possibly since the Middle Ages. The area receives a high level of environmental protection, and part of it is a 506 acre National Nature Reserve (from 2000) and a RAMSAR site (a wetland of international importance as a wildfowl habitat). Dawlish Warren is also part of the Exe Estuary Special Protection Area (SPA), and the golf course is designated as a Site of Special Scientific Interest (SSSI). A small seaside resort served by its own mainline railway station has developed here over the years, entertaining up to 10,000 visitors a day in peak season.

The walk begins at Starcross railway station, and covers 9 kilometres in total. A car park is located nearby, and there is a regular train link with the nearby city of Exeter. A passenger ferry across the river from Exmouth terminates directly behind the station. The village was built largely by the Victorians, and it was important in the seventeenth and eighteenth centuries as a ship anchorage when larger vessels were unable to reach upriver to Topsham or Exeter.

1. The walking route begins by following the National Cycle Network Route Two. After exiting the railway station, this is clearly signed on the opposite side of the road and slightly to the left. The first section is a detour designed to take walkers and cyclists away from the busy A379 road, and leads along Bonhay Road, takes the first left onto Well Street, and at the end crosses the road to continue along Courtnay Terrace. At the end, the route turns right into Church Street and bends left to become Royal Way, which leads back to the A379 road.

(continued overleaf)

Curiosity Questions:

- # Part of Dawlish Warren is a RAMSAR site. What do these letters stand for?
- # The nearby town of Dawlish is well-known for what animals?
- # A passenger ferry crosses the river Exe from Starcross to which town?
- # The Dawlish Warren railway line connects to which Exeter train station?

Further information:

<https://devongeography.wordpress.com/2023/09/14/a-walk-around-the-warren-part-one-starcross-to-dawlish-walk/>

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2. Alternatively, you can brave the traffic and turn left from the railway station to follow the pavement. This will take you past 'Brunel's Tower', an impressive square red sandstone building which is part of an old pumping station, now occupied by the Starcross Fishing & Cruising Club. This is the best surviving remnant of Brunel's atmospheric railway, an ambitious invention that instead of using steam locomotives, moved trains by a system of atmospheric (vacuum) traction. Air was extracted from 15 inch pipes that were laid between the rails by stabilising engines at a series of pumping stations along the line. On top of the pipes was a sealable slot which allowed a piston to pull the train. The 20-mile track between Exeter and Newton Abbot in 1847 became the world's longest atmospheric railway – but only for a short time. Although it first seemed like a fabulous idea, it eventually proved to be one of Brunel's rare failures, being quickly abandoned after less than a year of use. The system could only allow one train on the track at a particular time, and salt spray corroded metal parts quickly. However, the main problem was the harsh environment next to the sea which meant it was difficult to maintain the leather flaps that sealed the vacuum pipes. These had to be kept supple by regular oiling, and this attracted rats who literally made a meal of them. Brunel's new railway soon became too expensive to maintain. Just a short distance to the right of the railway station exit is a pub quaintly named 'The Atmospheric Railway'.



Old pump house at Starcross — photo: Paul Berry

3. Where the cycle path re-joins the main road, the route leads to the right and continues along the cycle path. After passing the Starcross golf course on the right, you reaches some traffic lights, where you need to cross the main road and follow the west side of the tidal Cockwood harbour, known locally as 'Cockwood Sod'. The small village of Cockwood originated as a small fishing village in the thirteenth century, and there were once salt works and lime kilns here, along with a pier and railway sidings that have since been dismantled.

4. The route passes the excellent Anchor Inn (with a choice of five real ales), and continues along the pavement with the railway line alongside to the left. It is worth taking the opportunity to cross the railway at Cockwood Steps to to view the Exe estuary and the town of Exmouth across the water. The Exe estuary is the most important feeding area in the south west for wildfowl and waders often containing up to 20,000 waterbirds with many different species represented at any one time.

5. The road drifts inland away from the estuary to pass through the hamlet of Eastdon, while a cycle path breaks off to the left. The mud and sand of the Dawlish Warren National Nature Reserve is now behind the hedge to the left.

6. The cycle path eventually crosses the road to run along its right hand side, before re-joining the road again opposite the Dawlish Sands Holiday Park. The road continues towards the settlement of Dawlish Warren, crossing a stream, passing the Welcome Family Holiday Park on the left, and then a number of bungalows and shops lining the Dawlish Warren Road.

7. At the roundabout in front of the Silly Goose pub, take a left turn into Beach Road, passing a small cluster of tourist shops. You then walk under a railway bridge, and after passing an amusement park and go-kart track on the right, continue along Beach Walk. This passes toilets, shops, and an amusement arcade before reaching the Boathouse pub.

8. From here, the route continues to the left past the beach huts (on the left) and slipway (on the right) and along the promenade at the head of the beach towards the Dawlish Warren spit. There is an excellent opportunity here to view the hard engineering management techniques introduced to protect the spit in the 1970s, and then thoroughly revamped in the Beach Management Scheme of 2017 (see following blog for further details).

9. Sloping concrete revetment separates the path from the beach, and soon the line of timber groynes comes into view. Seventeen of these were initially installed in the 1970s, and spaced every 100 metres **(continued overleaf)**

or so, pitched at right angles to the line of the coast. These were designed to impede longshore drift along the spit and retain sediment to maintain the excellent beach for visitors, but were eventually destroyed by the sea and required replacement in the 2017 management scheme.

10. A path leading inland towards the visitors' centre offers an alternative route to explore the inland Warren, curving to the right and eventually meeting up with the beach. However, there is limited access to the land owned by the golf club, and no access at all to the National Nature Reserve that lies beyond. The promenade soon gives way to a sandy path that runs through the dunes that back the beach. In 1782, a Dutch ship was engaged off Orcombe Point (across the estuary) by an English ship called 'The Defiance'. A bloody battle followed, and those killed were buried on the Warren. Their ghosts are said to haunt these sand dunes to this day.



Old groyne at Dawlish Warren — photo: Paul Berry

11. The soft-sand path gradually disappears, and further progress from groyne 10 towards the tip of the spit is now best achieved by walking along the beach itself. However, it is wise to check tide times as a high tide could cover the beach completely. There is no access east of groyne 9 for 2-3 hours each side of high tide from late August to late March due to roosting birds.

12. Alongside the groynes, other techniques used to try to manage the dynamics of wave action can be seen along this route. Firstly, the route passes a line of gabions, rock-filled wire cages installed in the 1970s as a backbone structure through the length of the spit under the dunes to try to prevent sea breaches. Many have been removed, and those that remain show how the power of the sea has ripped them apart, spilling their contents and leaving strands of rusted and

twisted wire as a hazard for walkers.

13. A little further on, at the 'neck' (narrowest part of the spit) between groynes 10 and 15, nearly 500 metres of black sand-filled geotextile bags (known as the 'geo-tube') can be seen. This is a second-generation technique introduced in 2017 to stabilise the dunes. Initially buried beneath the dunes, the geo-tube has since been exposed at the surface by wave action.

14. At the final groyne, the more natural area of sand and dunes at the distal end of the spit can be seen. This area is the most likely to experience change, affected by river and marine currents in addition to wave action. Hard to believe in days of old, the railway company built a number of holiday bungalows here, although they were eventually destroyed by the sea. Across the narrow gap in the estuary, the buildings of Exmouth and its esplanade, and the red sandstone headland of Orcombe Point (the start of the Jurassic Coast) appear almost close enough to touch.



Geo-tube at Dawlish Warren — photo: Paul Berry



Gabions at Dawlish Warren —
photo: Paul Berry

15. Once you have explored as far as you can, it is time to retrace your steps back to the slipway. Here, you can see the sea wall built to protect the railway and tourism businesses. The wall was refurbished in 1992 following severe storms. Beyond the wall is a band of granite rock armour designed to absorb the high energy of breaking storm waves. There is a 'Coast Snap' stand next to the lifeguards' hut, where you can make your own contribution to a science project monitoring the beach at Dawlish.

16. Rather than turn back along Beach Walk, continues along the promenade to meet up with the railway line. The South Devon railway

(continued overleaf)

line was extended by engineer Isambard Kingdom Brunel in 1846 to run from Exeter through Dawlish Warren and Dawlish onto Teignmouth. Brunel wanted to reduce costs by using the sea front for his railway, and as many as 2,000 navvies excavated tunnels, blasted cliffs, constructed a sea wall, and laid the tracks. Brunel planned breakwaters to accumulate beach material meaning his sea wall would only be touched by the sea in extreme storm conditions. Brunel's line was for its first year a broad gauge railway operated by an 'atmospheric' (vacuum pipe) system, but was soon changed to steam engines running on standard gauge tracks.



Revetment & rock armour — photo: Paul Berry

17. More recently placed larvikite rock armour has bolstered defences here to help protect the railway. This originates from the town of Larvik near Oslo in Norway, and is a coarsely crystalline bluish-grey igneous rock (often cut and polished and used to face offices and banks). It is of intermediate composition between granite (acid, high in quartz, lighter in colour) and gabbros (basic, darker in colour, without quartz but with dark iron and magnesium minerals).

18. After passing a footbridge that connects to one of Dawlish Warren's car parks, and then the Langstone Cliff Hotel on the far side of the tracks, the route leads on to the impressive sight of Langstone Rock. This was once a promontory (called

Langstone Point) of desert sandstone and breccia joined to the inland cliffs of Dawlish. It became separated from the mainland by the cutting that accommodated Brunel's railway line. Beds of New red sandstone up to 1100 metres deep were deposited in the Permian period, from 280 million years (shortly after Dartmoor's granite intrusions) to the beginning of the Triassic period, 240 million years ago. At this time, Devon was semi-arid with a hot climate, and large sand storms and rare flash floods would transport material rich in iron oxide off the mountains into the valleys and flood plains from Tiverton to Torbay. Interspersed within the layers of sandstone are beds of breccia (red sandstone with angular fragments of limestone embedded in it) laid down during flash flood events. There is a distant view of an impressive arch at the end of the red sandstone headland, but this is best viewed further along the route from the beach at the western side.

19. As the headland is approached, a wave cut platform can be seen on its western side, suggesting how much larger this mass of rock would have been in the past. Some old brickwork and a columnar structure (known locally as the 'dinosaur's nest') is visible here, relics of old sea defences that were discontinued.

20. Continue past the Elephant Rock Cafe (closed at the time of writing), and then walk onto the beach to examine the features Langstone Rock. Joints in the cliff face have been exploited by wave action to produce a number of deep caves, and the sea has punched right through the headland to create a stunning arch. A granite breakwater extends out to sea, designed to slow the movement of beach material from west to east through the process of longshore drift. It was constructed to offer limited protection to the railway line and sea wall, but it is believed that this breakwater is responsible for a reduction in material feeding the spit to the east, leaving it more exposed to erosive action. Some material has leaked through the arch itself, and a barrier has been added there to prevent this. A close inspection shows how material has built up on the west side of the barrier, leaving a drop of some twelve feet to beach level on the eastern side.

21. It is possible to continue along the beach at low tide, otherwise the route returns to the promenade above the sea wall and continues eastwards towards Dawlish town. There is no protective fence along the promenade, so take care, as for parts of the route there is a steep and sudden drop to beach level.

22. A line of groynes jut out to sea, while the railway runs right next to the promenade. In places, there are some excellent exposures of the red sandstone cliffs beyond the railway line. Bedding planes are clearly visible, and in places, dune cross-bedding can be spotted.

23. The route soon passes the stretch of railway that became well-known to the rest of Britain through *(continued overleaf)*

frequent coverage in news reports following Storm Petra in 2014. The sea undermined the railway line at this time, leaving it dangling in mid-air, and large-scale repairs were necessary. New flood barriers are clearly visible.

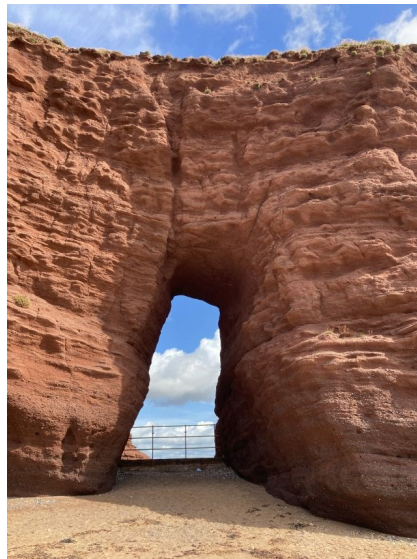
24. Continues along the new promenade to pass the regenerated Dawlish station (opened in July, 2023) and the newly-created sea front public spaces. A new footbridge across the railway line was not fully completed at the time of writing, but should be finished by the end of the 2023 summer. The new sea wall, flood defences, and public amenities are part of the £165 million South West Resilience Programme (£82 million of which was devoted to the new Dawlish sea defences), a project to improve the the south west rail network following the 2014 storm.



New promenade and sea wall at Dawlish — photo: Paul Berry

25. As you approach Dawlish town, you can look eastwards across Dawlish Bay to the stacks and arch called ‘The Parson and the Clerk’. The rock formations here are said to represent a real life pair who were out collecting tithes from reluctant tenants, when they spent their proceeds to get very drunk. They fell in with the Devil, and finally fell into the sea and were turned to stone.

26. You might want to follow the underpass path and spend some time exploring the quaint town of Dawlish, with its tea rooms and famous black swans. You then you have a choice. You can retrace your steps along the sea front all the way to Starcross, or catch the train back to Dawlish Warren, Starcross, or Exeter.



Arch at Langstone Rock — photo: Paul Berry

Answers to Curiosity Questions:

- # Part of Dawlish Warren is a RAMSAR site. What do these letters stand for? *(This is not an acronym! It is named after a town in Iran were the conservation treaty was signed)*
- # The nearby town of Dawlish is well-known for what animals? *(Black swans)*
- # A passenger ferry crosses the river Exe from Starcross to which town? *(Exmouth)*
- # The Dawlish Warren railway line connects to which Exeter train station? *(St David’s station)*

Starcross To Dawlish Warren, East Devon

