

What is Vegetated Shingle?

Shingle is accumulations of pebbles ranging from two to 200 millimetres diameter. The shingle is deposited either as fringing beaches running along the coastline, or as cusped forelands where it develops into a triangular mass usually as a result of wave approach from two directions. Here the shingle is aligned in ridges of differing ages, the oldest ridges generally being the furthest from the present shoreline. Communities on shingle range from pioneer plant communities on fringing shingle beaches, through a lichen-rich turf, to gorse scrub on disturbed or marginal areas, bramble on damper patches and where grazed to a species-rich turf. The vegetation assemblage varies depending on distance from the sea, the size of the pebbles and the availability of water.

The Solent's shingle habitats include both mobile and stable systems, and incorporate a wide representation of shingle vegetation communities. Many of the major harbours are protected from the open sea by multiple ridge sand/shingle spit systems, and shingle islets. Some are unstable and largely unvegetated. Others have stabilised and show a diverse vegetation assemblage. The smaller estuaries have small shingle spits, often with transition to marsh. A few of these former promontories are now isolated inland, as at Keyhaven.

Species Supported

Vegetated shingle is characterised by specialised plants that have adapted to survive in harsh coastal conditions where lack of fresh water and nutrients are compounded by fierce winds and impact by waves. Shingle habitats are also particularly important for invertebrates and for some breeding and roosting birds.

Most coastal shingle is too mobile to support plant communities. Only a small proportion of these habitats are sufficiently stable for fixed vegetation to become established, further stabilising the habitat and providing opportunities for a more biodiverse community structure to develop.

Several Solent shingle sites are of regional importance for their representative southern vegetation communities. Pioneer assemblages on undisturbed pure shingle contain sea kale (declining in Britain) and yellow horned-poppy. Rarities on pure shingle include the nationally rare sea pea and the scarce Portland spurge. Little robin geranium is limited to south and west coast sites and has some of its best development on open shingle at Browdown and Hurst Spit. Sea heath at Newtown Harbour is near its western limits of distribution in Britain. The sandy shingle at Hayling Island supports large areas of the declining Ray's knotgrass. Sea knotgrass is found at a number of Solent sites and at Hengistbury Head. Golden samphire is important on transitions to saltmarsh, with one of the two largest populations on the south coast being found at Hurst Spit.

Important fauna includes breeding colonies of terns (often on shingle islands on the face of saltmarsh or in harbours), ringed plover, black-headed and Mediterranean gull, and nationally rare invertebrates. Browdown and Hurst Castle are both known to support such invertebrates.

The Value of Vegetated Shingle in the Solent

Shingle beaches, such as at Lee-on-the-Solent, provide a place for quiet recreation and enjoyment of the seaside. Shingle is appreciated aesthetically, however its physical qualities limit its amenity uses.

Historically the extraction industry had a major impact on the oldest shingle ridges. It was used as a natural material for sea defences and in the building industry. Flat shingle areas are often used as carparks.

Shingle barriers and beaches act as natural flood defence barriers protecting the land and property built behind them.

Did you know?

The single most important vegetated shingle site in the Solent is the sixty-four hectare multiple ridge system at Browndown, which is of national conservation importance, and is one of the ten most important shingle structures in Britain.

Where can Vegetated Shingle be found in the Solent?

Hampshire

Browndown
Needs Ore Point
Hurst Spit
Stanswood Bay
Calshot Spit
Weston Shore
Hook Spit
Gilkicker Point
Pewit Island (Portsmouth Harbour)
Binness Island (Langstone Harbour)
Eastney Beach

Isle of Wight

Eastern Yar
Newtown Harbour
Wootton Creek
King's Quay
Thorness Bay
Quarr

West Sussex

Bracklesham Bay
West Wittering Beach
Selsey Bill

The single most important vegetated shingle site in the Solent is the sixty-four hectare multiple ridge system at Browndown. This is of national conservation significance for its characteristic vegetation, including rarities, and nationally rare invertebrates.

Hurst Spit is a dynamic 2.5 kilometre long shingle spit with terminal recurved ridges which is moving slowly into the Solent over the saltmarsh that it shelters. Although affected by breaches and repairs, it is still of national importance for its geomorphology, shingle vegetation and nationally rare invertebrate communities. It plays a vital role in protecting the western Solent coast from storms.

On the eastern side of the Solent sites with shingle habitat include Bracklesham Bay, West Wittering Beach, East Head spit and Selsey Bill. Of these, West Wittering is the site of greatest botanical interest.

There are a few shingle areas on the Island's coast and they are of limited extent, however several sites are considered to be of regional importance for their representation of southern vegetation communities. Sites are restricted to the north coast and the best examples are the spits at the entrance of Newtown Harbour. Other sites occur at Wootton Creek and King's Quay. The foreshores at Thorness Bay and Quarr are examples of shingle barriers.

Conservation designations

Vegetated shingle is a nationally rare habitat type and is listed on Annex 1 of the EC Habitats Directive as a habitat of international conservation importance. In the Solent, vegetated shingle is a qualifying feature for the Solent Maritime Special Area of Conservation but it is not the primary reason for the site's selection.

Sites in the Solent of botanical interest, such as Needs Ore Point, Browndown and Newtown Harbour are designated as Sites of Special Scientific Interest. Some also fall within Sites of Importance for Nature Conservation (SINC) and local and national nature reserves.

Issues, Threats and Opportunities

Rising sea level, climate change and coastal squeeze – many of the Solent's vegetated shingle sites are limited in their natural landward migration (as a result of sea level rise) by urban development. This can affect both site area and plant assemblage.

Disruption of natural coastal sediment processes – coastal defence works at shingle sites or sites that supply the beach with shingle have the potential to disrupt the flow of sediment and lead to site degradation.

Water quality and pollution – pollution resulting from dumping at sea can have a serious impact on the habitat. Oil is a particular problem on shingle beaches as it is difficult to clean and disperse.

Dredging and dumping – the extraction of material from a shingle beach will directly impact on the wildlife and plants that inhabit it. Offshore extraction also has the potential to starve the site of shingle material. The dumping of material from coast protection works will smother the underlying habitats.

Changing land use and management – the trend towards the urbanisation of shingle, particularly on the coastal strip (tidying/creating a sterile environment) leads to a decline in biological condition.

Non-native and introduced species – the dumping of green waste allows for the possibility of invasion of non-native species to the detriment of the specialised local flora.

Recreation – the trampling of flora and the disturbance of fauna by humans results in a decrease in biodiversity. Ground nesting birds are particularly affected by human intrusion. Dog fouling and litter are additional problems. Public awareness is vital to ensure habitats at popular sites remain unspoilt.