

Coastal Vegetated Shingle

Globally, coastal features dominated by shingle are relatively rare. North-west Europe is one of the main locations where shingle beaches and structures occur in any quantity. Shingle systems are recognised as an internationally important, but disappearing resource coming under increasing threat from damaging processes such as development and aggregate extraction as well as from 'coastal squeeze' in the face of rising sea-levels and coastal erosion. The mobile nature of shingle means that most of the world's shingle features are largely bare of vegetation so it is significant that Britain holds approximately one third of all the vegetated shingle in Europe. Shingle beaches represent a rare ecosystem and should be regarded as important in their own right as geomorphological features as well as supporting a highly specialised and important flora and fauna.

1 Definition

Coastal shingle can occur in a number of geomorphological forms. In Suffolk two main types are found – embayment beach ridge plains such as those at Thorpeness and Kessingland where a series of relict storm beach ridges and an active shore system partly or wholly infills a former embayment; and barrier spits where a single spit made up of relict storm ridges and a shore system lies parallel to the open coast, partially blocking a harbour and estuary, such as at Orford Ness.

Shingle deposits are simply a coarse sediment with particle sizes in the range of 2 to 200mm, i.e. between that of boulders and sand. All shingle beaches consist of a mixture of these particle sizes, some being well sorted, some poorly sorted. In terms of particle size, shingle beaches can be classified into three types – those composed entirely of gravel (Orford Ness); those with the upper foreshore composed of gravel and the lower foreshore of sand separated with a marked break of slope (Thorpeness); and those where there is no clear spatial separation between gravel and sand (Sizewell, Dunwich).

Classic vegetated shingle communities which develop out of reach of the normal tide cover only 4000 ha to 5000ha in Britain. Over half of this occurs on two sites – Orford Ness and Dungeness. Colonisation of shingle is dependant on three main factors – degree of disturbance and mobility of shingle due to factors such as wave action; presence or absence of fines in the shingle matrix; and the availability of moisture.

2 Current Status

2.1 National

In Britain, beaches with an important shingle component occur along approximately 19000km of shoreline, with pure shingle beaches forming almost 3500km. Approximately one-third of the coastline of England and Wales is bordered by shingle and about 900km of this is pure shingle. Many of the important shingle beaches occur along the coast of East Anglia and the English Channel and are made up of a high proportion of flint and chert.

2.2 Local

In Suffolk there are 859 ha of vegetated shingle which represents approximately 20% of the national resource. These sites are some of the most 'natural' places in the country. Shingle structures sufficiently stable to support perennial vegetation are a rare feature even in the UK. Orford Ness, as well as forming a cusped foreland, also has the finest example of a pure shingle spit in Europe, extending for 16 km. Other significant areas of vegetated shingle in Suffolk occur at Landguard Point, Thorpeness Haven and Shingle Street and also on open coast at Felixstowe Ferry, Bawdsey, Kessingland, Minsmere Beach, The Dingle and Benacre.

3 Current factors affecting coastal vegetated shingle in Suffolk

- The main source of new material for most shingle structures comes from coastal cliff erosion and reworking of other existing shingle deposits.
- Shingle features are rarely stable in the long term. Many structures exhibit continuous longshore drift with shingle being transported and sorted by wave action. This dynamic nature is an important aspect of the habitat.
- In recent years approaches to erosion protection and flood defence on shingle beaches have significantly changed from predominately hard defences to beach recharge and maintenance. Shingle areas have high wildlife interest and important coast protection functions, however, when coupled with economic value these are often in conflict.
- Threat from development causing damage to fragile coastal vegetated shingle features. This has occurred in Suffolk most obviously at Sizewell (nuclear power station), Landguard (port development) and Orford Ness (military test site).
- Coastal vegetated shingle habitats are extremely fragile; the effects of access on foot, and particularly by vehicles has degraded many sites with loss of vegetation and lack of regeneration. Vehicle access to beaches by is also an issue, and recreational use (Thorpeness/Aldeburgh, Landguard, Shingle Street).
- Grazing by domestic livestock only occurs on a few shingle sites such as Simpson's Saltings on the Alde-Ore Estuary where the shingle vegetation is within a matrix of other vegetation types. Over-grazing in these situations will damage shingle 'heath'.

4 Current action

4.1 Legal status

The majority of shingle features in Suffolk are under some form of protection. A total of 685 ha of shingle have been designated as SSSI, whilst a further 174 ha have been identified as County Wildlife Sites. Landguard Point is a Local Nature Reserve managed by SWT. Orford Ness is also a Special Area of Conservation (SAC) under Annex 1 of the EU Habitats Directive (Annual vegetation of drift lines, perennial vegetation of stony banks). It is also a Special Protection Area (SPA). Vegetated shingle at Sizewell beach (restored in front of power station and natural towards Dunwich, Minsmere and Dingle are all candidate SACs).

4.2 Management and research

Much of the coastal vegetated shingle in Suffolk is under low input management by various conservation bodies.

Landguard Point potentially receives the greatest visitor pressure as it is situated near to a large centre of population. An estimated 250,000 visitors are attracted to the LNR annually, which leads to excessive trampling of shingle vegetation. This is reduced by interpretation, education, wardening, temporary fencing, boardwalks and sign posting. Sea pea (*Lathyrus japonicus*) is monitored regularly by Suffolk Wildlife Trust.

Shingle Street is privately owned and compared with Landguard Point receives relatively few visitors. Access points are mainly around the one parking area. The Suffolk Coasts and Heaths Project have erected an interpretation board, which highlights shingle vegetation and the need for protection.

Simpson's Saltings is part of the Alde-Ore Estuary SSSI and is owned by SWT. The site is lightly summer grazed with cattle which has an effect on the shingle vegetation. The island in the estuary is not grazed and here the lichen-rich shingle vegetation is best developed. Boat landing is not encouraged.

Orford Ness is owned and managed by the National Trust. Public access is restricted to ferry crossings from Orford Quay. The visitor route follows concrete/tarmac tracks except for a 300m section along the foreshore. Vehicular access is restricted at the Slaughden end to members of the Orford Ness Angling Club under annual agreement with the National Trust.

EU LIFE funding has provided funds for research on nutrient enrichment, monitoring of *Lathyrus japonicus* and an experimental re-construction of the ridge system on a damaged site. An EIA is currently being carried out at the northern end of the spit near Slaughden.

Thorpeness Haven is managed by the SWT. Visitor numbers are a potential problem for the shingle vegetation. The road verge is the most vulnerable area within this site as it is subject to severe erosion from cars driving on the verge. This area supports several nationally rare plant species, such as sand catchfly *Silene conica*, which require slight (not heavy) disturbance. The area has been suggested as a proposed Roadside Nature Reserve.

Sizewell Beach is managed by the SWT. There is a mixture of naturally established shingle flora to the north and a restoration project in front of the power station. Public pressure is a potential issue in the areas close to the public car parks and in front of the power station. There is some four-wheel drive activity to the north.

5 Action plan objectives and targets

- 1 *Maintain the existing 859 ha of coastal vegetated shingle in Suffolk with no net loss*
- 2 *Prevent, further exploitation of, or damage to, existing vegetated shingle sites through human activities, and maintain the quality of existing plant and invertebrate communities. Where necessary restore to a favourable condition. Promote importance of habitat to users/public.*
- 3 *Ensure conditions are suitable on damaged sites for natural recovery of vegetated shingle.*
- 4 *Continue the monitoring of experimental restoration sites to assess the potential and feasibility for carrying out further restoration of severely damaged habitats.*

6 Coastal Vegetated Shingle: Proposed Action with Lead Agencies

Action	Date	Partners
POLICY AND LEGISLATION		
Ensure coast protection measures outlined in Shoreline Management Plan, Coastal Habitat Action Management Plans (CHAMPs) and Suffolk Coast and Heaths Management Plan make reference to this habitat.	2004 2005 2006 2007	EA, EN, WDC, SCDC
Ensure that any unprotected coastal vegetated shingle sites of nature conservation importance are granted appropriate designation and protection.	2006	EN, SCC, SWT
Ensure that nature conservation interests and issues relating to coastal vegetated shingle are fully represented in Local Plans.	2004 2005 2006 2007	SCDC, WDC
SITE SAFEGUARD AND MANAGEMENT		
Through management of public access by foot or vehicle, limit damage and degradation through trampling on vegetated shingle areas, especially Orford Ness, Landguard Point and Shingle Street.	2005	EN, NT, SWT, RSPB, SCHU, SCDC, WDC
Agree management briefs for all coastal vegetated shingle habitats of conservation importance with a view to maintaining or improving ecological value.	2005	EN, NT, SWT, RSPB, EA, SCDC, WDC
Through local planning system ensure coastal defence or other construction works avoid any degradation of coastal or other natural processes which might lead to the loss of coastal vegetated shingle and associated habitats.	2004 2005 2006 2007	SWT, EA, EN, NT, RSPB, SCDC, WDC
RESEARCH AND MONITORING		
Continue to contribute records of key vegetated shingle species, to Suffolk Biological Records centre. Eg; Bright wave moth, <i>Lathyrus japonicus</i> , <i>Silene conica</i>	2004 2005 2006 2007	EA, EN, NT, RSPB, SWT, BC, SNS
Assess the current extent of damage to shingle vegetation and geomorphology in order to inform the setting of restoration targets. Undertake 5 yearly survey of all sites.	2004 2009	EN, EA, SBRC, NT

ADVISORY		
Encourage the appropriate management of coastal vegetated shingle through the dissemination of appropriate literature, guided walks and information on grants/schemes, to key organisations, landowners and managers.	2005	SCHU, EA, EN, DEFRA, SWT, RSPB, NT, EN, SCDC, WDC
Establish local or regional links to technical experts on the relationships between coastal vegetated shingle, nature conservation and public access.	2004	EN, EA, NT, SWT, RSPB, SCHU, SCDC, WDC
COMMUNICATIONS AND PUBLICITY		
Raise public awareness, especially amongst key user groups (fishermen & boating groups) of the nature conservation importance, and fragility of coastal vegetated shingle and its value for a variety of interests.	2004 2006	EA, EN, NT, SWT, RSPB, DEFRA, SCHU, SCDC, WDC
Hold an educational awareness day (activities) relating to coastal vegetated shingle.	2005	SCHU, EN, EA, NT, RSPB, SWT, DEFRA, SCDC, WDC