

COUNTY: EAST SUSSEX

SITE NAME: RYE HARBOUR

DISTRICT: ROTHER

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981. Part of the site forms Rye Harbour Local Nature Reserve (LNR).

Local Planning Authority: ROTHER DISTRICT COUNCIL

National Grid Reference: TQ 935180      Area: 761.1 (ha.) 1880.7 (ac.)

Ordnance Survey Sheet 1:50,000: 182      1:10,000: TQ 91 NW, 91 NE

Date Notified (Under 1949 Act): 1953      Date of Last Revision: 1966

Date Notified (Under 1981 Act): 1984      Date of Last Revision: 1988

Other Information:

This site will be listed in 'The Geological Conservation Review'.

Reasons for Notification:

This large and ecologically complex site is of considerable biological and geological importance. It has the only extensive tract of shingle in East Sussex; only Dungeness in Kent (a site of international importance) has a larger area of this habitat in Southern Britain. The site also contains areas of alluvial grazing marsh, saltmarsh, and intertidal sands and muds. The diversity and rarity of habitats present at Rye Harbour account for the extremely rich flora and fauna, the site supports nationally important communities of plants, birds and invertebrates. It is the locality of the endangered least lettuce *Lactuca saligna*, a species listed on Schedule 8 of the Wildlife and Countryside Act 1981 as requiring special protection.

The shingle beach at Rye Harbour has been accreting in a southerly direction creating a fan-shaped belt of sand and shingle. This belt is narrow in the west of the site and broadens rapidly to the north and east. The shingle ridges to the north of the existing beach represent old shorelines; the most ancient (circa 12th century) is in the west near Camber Castle. These features are of great geomorphological significance, and are also of biological interest. The range of plant and animal communities which have developed reflect the age of the shingle ridges and the degree of maritime climatic influence. Shingle extraction over part of the area has created a series of pools and lakes which range in chemical status from brackish to freshwater; some have marginal stands of tall fen vegetation. Superficial deposits of sands, silts and clays have accumulated between the shingle ridges. These deposits are deepest in the north-west of the site and here the land has been managed as lowland grazing marsh with a network of drainage ditches. The intertidal zone at Rye Harbour consists of a linear saltmarsh on the sheltered west bank of the River Rother and the soft muds and sands of the main beach.

Habitats on Shingle

The main coastal ridge and the shingle plain behind it are only sparsely vegetated due to the instability of the newly deposited shingle and the exposed position. Despite this the area supports many different plant species, including sea rocket *Cakile maritima*, yellow horned poppy *Glaucium flavum*, curled dock *Rumex crispus*, thrift *Armeria maritima* and sea pea *Lathyrus japonicus*. A remarkable number of nationally uncommon plants are present including the least lettuce *Lactuca saligna*, a plant which is now restricted to 9 sites in Britain. Other nationally uncommon plants are bearded fescue grass *Vulpia ambigua*, sea barley grass *Hordeum marinum*, slender hare's ear *Bupleurum tenuissimum*, Borrer's saltmarsh grass *Puccinellia fasciculata*, stiff saltmarsh grass *Puccinellia rupestris* and sea kale *Crambe maritima*.

Further inland the shingle is more stable and the climate less harsh. Grassland communities have developed with belts of gorse *Ulex europaeus* scrub in places. Around Camber Castle the grassland is relatively unimproved and grazing has produced short herb communities rich in flowering plants. The sward is dominated by fescue grasses *Festuca* species and contains many herbs including suffocated clover *Trifolium suffocatum*, fenugreek *Trifolium ornithopodioides*, shepherd's cress *Teesdalia nudicaulis*, upright chickweed *Moenchia erecta*, dwarf thistle *Cirsium acaule* and bearded fescue grass. Around the gravel pits there are areas of rougher grassland: these are dominated by cock's-foot *Dactylis glomerata* and have belts of hawthorn *Crataegus monogyna*, sallow *Salix cinerea* and gorse. The open water habitats created by shingle extraction have an aquatic flora which includes horned pondweed *Zannichellia palustris* and fennel pondweed *Potamogeton pectinatus*. Tall fen communities fringing some of these lakes and pools are dominated by common reed *Phragmites australis*; associated species include grey clubrush *Schoenoplectus tabernaemontani*, sea clubrush *Scirpus maritimus* and yellow flag *Iris pseudacorus*. Shingle islands in some of the larger lakes carry a number of unusual plants including marsh helleborine *Epipactis palustris*, southern marsh orchid *Dactylorhiza praetermissa* and English stonecrop *Sedum anglicum*.

The shingle areas support nationally important invertebrate and bird communities. Rye Harbour is one of the most important British breeding grounds for both common terns and little terns which breed on open shingle. The little tern is now one of the rarest regular breeding seabirds in Britain. Other birds breeding on the open shingle include ringed plover, oystercatcher and wheatear. The shingle scrub supports breeding whitethroat, lesser whitethroat and corn bunting. The adjoining water areas carries important breeding populations of pochard, tufted duck, shelduck, coot and mute swan. This habitat is also valuable for overwintering birds such as snipe, golden plover and oystercatcher.

The invertebrate fauna of Rye Harbour is outstanding, and the beetle fauna is particularly rich. The site is nationally important for 3 beetle groups: the carabidae (ground beetles), the staphylinidae (rare beetles) and the aquatic beetles. The most important habitats for these are the smaller ponds and pits together with the areas of bare sand and shingle. Three endangered species of beetle occur: *Dibolia cynoglossi*, *Omophron limbatum* and *Dyschirius obscurus*. Several other uncommon beetles are present, including *Cercyon bifenestratus*, *Limobius mixtus*, *Heterocerus hispidulus* and *Hydrophilus piceus*. In addition there is a large number of beetles which have a restricted distribution in East Sussex.

The moth fauna of the shingle areas is rich, with records for over 250 species. The drier sand and shingle plains support one nationally rare moth, the pygmy footman *Eilema pygmaeola*, and several other species which are uncommon in East Sussex, including yarrow pug *Eupithecia millefoliata*, starwort shark *Cucullia asteris* and white colon *Sideris albicolon*. The areas of tall fen have a moth fauna which includes obscure wainscot *Mythimna obsoleta*, Webb's wainscot *Archanara sparganii* and twin-spotted wainscot *Archanara geminipuncta*; all of these are scarce in East Sussex. Several other invertebrate groups are well represented including orthoptera (grasshoppers and crickets), odonata (dragonflies), hymenoptera (bees, wasps and ants) and hemiptera (bugs); notable species from these groups include the ground hopper *Tetrix ceperoi*, the ruddy darter dragonfly *Sympetrum sanguineum*, the bumble bee *Bombus ruderatus* and the water boatman *Corixa affinis*.

#### Grassland and Arable Habitats

The lowland grazing marsh is now largely managed on a system of crop rotation. Although of limited botanical interest the fields provide feeding and breeding grounds for a number of birds. Over 120 species of birds winter at Rye Harbour; the fields are particularly important for wintering golden plover, lapwing, dunlin, redshank, ruff and ringed plover. Breeding birds include lapwing and redshank. A network of drainage ditches dissects part of the marsh and the slow moving nutrient-rich water provides another important habitat for plants and invertebrates. *Phragmites australis* and *Juncus inflexus* are typical dyke plants where the water is relatively fresh, with *Scirpus maritimus* where there is a brackish influence. Ditches in the outlying area west of the River Brede contain three notable plant species: rootless duckweed *Wolffia arrhiza*, soft hornwort *Ceratophyllum submersum* and hair-like pondweed *Potamogeton trichoides*.

#### Intertidal Habitats

The saltmarsh fringing the River Rother is subject to varying degrees of tidal influence. Glassworts *Salicornia* species colonise the frequently inundated bare muds. Areas which are flooded by only the highest tides are dominated by sea purslane *Halimione portulacoides* with associated species such as sea aster *Aster tripolium*, lesser sea-spurrey *Spergularia marina*, greater sea-spurrey *Spergularia media* and a species which is scarce in East Sussex, sea heath *Frankenia laevis*. The saltmarsh supports a number of uncommon moths including crescent striped *Rhyacia simulans* and archers dart *Agrostis vestigialis*.

The fine sands and muds of the intertidal zone on the main beach supports rich communities of bivalve molluscs and polychaete worms. These invertebrates provide a valuable food source for a large number of birds, in particular wintering turn-stone, snipe, oystercatcher, golden plover, ringed plover, redshank, dunlin and common scoter.

#### Geological Interest

The shingle ridges and intervening marshes which comprise the site are of national geomorphological importance since they are believed to comprise part of the Dungeness shingle complex, one of the three major natural shingle structures which occur in England. The other shingle structures (Chesil Beach and Orford Ness) differ

in form and evolution from Rye Harbour and Dungeness and the three sites, taken together, provide critical evidence of the sea-level changes and processes of coastal evolution which have affected the British Isles during the last 15,000 years – the so-called ‘Flandrian Transgression’.

The shingle ridge and marsh sequence has accreted in comparatively recent times across the old harbour mouth, leading to a progressive silting up of the harbour and the decline of Rye as a port from the 16th Century onwards. The area consists of a series of very distinct sand and shingle ridges and recurves which are separated by low marshy strips; the whole sequence fans out across the area in a north easterly direction from a focal point in the vicinity of Winchelsea Beach. The earliest ridges are orientated in a north-south direction, but as growth continued the structure pivoted round towards the northeast, so that the last-formed ridges are aligned in this direction. The innermost ridges are completely vegetated but some bare shingle is exposed on seaward ridges. Study of their well-defined morphology and structure enables the evolution of the area to be determined.

The area has been studied in considerable detail in the past, leading to the recognition of three major systems of shingle ridges which have been correlated with ridges on the cusate foreland at Dungeness. Other studies have examined the evolution of the ridge systems in relation to shoreline changes recognised from old charts, maps and historical records. Further research potential at the site exists in determining its exact relationship with the Dungeness foreland, using new and improved techniques of analysis.