CITATION

COUNTY: East Sussex **SITE NAME**: Seaford to Beachy Head

DISTRICT: Lewes; Wealden; Eastbourne

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981, as amended.

Local Planning Authority: Lewes District Council, Wealden District Council; Eastbourne Borough Council

National Grid Reference: TQ 540970 **Area**: 1102 (ha).

Ordnance Survey Sheet 1:50,000: 198, 199 1:10,000:TV59 NE, NW; TQ50 SW; TQ 40 SE; TV 49 NE; TV 69 NW

Date Notified (Under 1949 Act): 1953 **Date of Last Revision:** 1965

Date Notified (Under 1981 Act): 1986 **Date of Last Revision:** 1988

Date of Current Notification: 15 November 1999

Reasons for Notification:

Seaford to Beachy Head is an outstanding site of national importance for its biological and geological features. The diverse range of habitats includes herb-rich chalk grassland, chalk heath (a unique, rare habitat on chalk soils), maritime grassland, foreshore and chalk cliffs, river meanders, and Greensand reed. Together, these habitats support a number of nationally rare, nationally scarce and nationally significant plants, invertebrates and birds.

The cliffs and chalk platform beneath, the Greensand reef, and the chalk escarpment at Cow Gap are identified in the Geological Conservation Review as outstanding for their geological and geomorphological interest.

General Description:

The site lies at the eastern end of the South Downs which terminates in the chalk cliffs of the Seven Sisters. The majority of the site, therefore, lies on chalk but the River Cuckmere breaches the cliffs to form a broad alluvial valley. There is also a distinct coastal zone which includes all of the geological interest.

Biology

(a) Terrestrial Chalk Habitat
These habitats include species-rich chalk grassland, scrub and woodland and a small area of the rare chalk heath. The chalk grassland flora is variable, due to local differences in climatic influence but the dominant species include sheep's fescue *Festuca ovina*, upright brome *Bromus erectus*, tor grass *Brachypodium pinnatum* and glaucous sedge *Carex flacca*. A characteristic feature of the site is the unusual predominance of southern elements of the British flora: these include rock sea lavender

Limonium binervosum, sea radish *Raphanus maritimus* and rock samphire *Crithmum maritimum* on the steep chalk cliffs. On the cliff top, and further inalnd, species characteristic of this southern flora are round-headed ramion, *Phyteuma orbiculare*, burnt orchid *Orchis ustulata*, field fleawort *Senecio integrifolius*, moon carrot *Seseli libanotis*, small hare's ear *Bupleurum baldense* and early spider orchid *Ophrys sphegodes.* The site also represents the most easterly location in Britain of several plants which have a predominantly south western distribution.

Chalk heath communities have developed at this site on neutral loess soils and contain both plants adapted to growing in acidic soils (calcifuges) and those adapted to growing in basic soils (calcicoles). This rare habitat is characterised here by species such as heather (ling) *Calluna vulgaris* and occaisional bell heather *Erica cinerea* growing amongst typical downland herbs.

Belts of pure gorse *Ulex europaeus* dominate much of the scrub but mixed scrub is also present with blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, wayfaring tree *Viburnum lantana* and wild privet *Ligustrum vulgare*. Horseshoe Plantation is the only well developed wood and consists of sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior* and Enlgish elm *Ulmus procera.*

The invertebrate fauna includes two nationally rare species: the cranefly *Gonomyia conoviensis*, and the moth *Adscita globulariae*. The scrub and downland also support important invertebrate populations, including colonies of the silver-spotted skipper and adonis blue butterflies and several uncommon moths. The site is also important for its breeding bird populations, including peregrine falcon, fulmar, green woodpecker, stonechat, lesser whitethroat and yellowhammer, and is nationally significant for the numbers of passage birds, which use the Downs as a route-finding landmark. Over two hundred species of birds on passage have been recorded from Beachy Head alone.

(b) Alluvial Habitats
The River Cuckmere has been canalised in its lower reaches but the meanders have been retained, although they now receive little tidal water. The alluvial meadows, and drainage ditches which dissect them, are important for the number of unusual plants they support. The main components of the meadows are sea barley *Hordeum marinum*, cock's-foot grass *Dactylis glomerata* and rye grass *Lolium perenne.* Also present are the nationally rare red star thistle *Centaurea calcitrapa* and the locally uncommon adder's tongue fern *Ophioglossum vulgatum* and slender hare's-ear *Bupleurum tenuissimum*. The drainage ditches are generally freshwater or brackish and prominent species include the round-fruited rush *Juncus compressus,* common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus.* More unusual plants are golden dock *Rumex maritimus*, marsh dock *Rumex palustris*, and the water star-wort *Callitriche truncata*. Common reed dominates the 5 hectare Charlestone reed bed and forms the ground flora beneath a small area of crack willow *Salix fragilis* woodland.

Saltmarsh communities, developed over clays and silts, line the canalised and upper reaches of the river. Bare muds by the water's edge have been colonised by glassworts *Salicornia* species, but above this is a mixed community of sea purslane *Atriplex portulacoides*, sea aster *Aster tripolium* and, less commonly, rock samphire *Crithmum maritimum* and annual seablite *Suaeda maritima*. On slightly higher ground is a turf of sea couch grass *Elytrigia atherica*, common cord grass *Spartina anglica* and greater sea spurrey *Spergularia media*.

The Cuckmere Valley is also important for breeding birds and for the nationally significant number and diversity of birds recorded on passage. The alluvial meadows,

although rarely flooded, are also important for overwintering species, including teal, wigeon and snipe. The bush cricket *Tettigonia viridissima* has been recorded in grazing meadows near the sea.

(c) Coastal Habitats.
These comprise the shingle bank which has developed wither side of the mouth of the Cuckmere, and the cliff and foreshore with their attendant geological interest. The shingle is sparsely vegetated but supports a representative flora, with curled dock *Rumex crispus*, sea beet *Beta vulgaris* ssp. m*aritima*, yellow horned-poppy *Glaucium flavum* and sea bindweed *Calystegia soldanella*. The shingle bank carries a number of uncommon centipedes, some of which have been recorded from nowhere else in the UK.

(d) Marine Habitats
Large areas of chalk foreshore are found in this site with a good representative of the main intertidal habitats characteristic of this shore type in the south east. The chalk shores of the Birling Gap area are particularly rich in algae and amongst the best, phycologically, in Sussex. A few elements of algal assemblages characteristic of the splash zone on chalk are present on the cliffs and in caves. Upper mid littoral levels are dominated by barnacles and limpets, but a dense fucoid (wrack\0 canopy with foliose algal understorey is present from the middle shore downwards and the rock bored by several species of paddock and the worm *Polydora* spp. Large rock pools and runnels with flowing water often contain prolific algal growths with a considerable variety of green, brown and red seaweeds present. Deep, steep-sided gullies on the lower shore have interesting algal and invertebrate communities with characteristic algal assemblages found in sandy and muddy areas.

The Pound, at the eastern end of the site, is a very complex foreshore comprising eroded reefs, approximately parallel to the coastline, with channels, pools and lagoons between them floored by soft clay and chalk. The seaward side of the area is bounded by a high barrier reef of Upper Greensand; communities on the outer, wave exposed side of this contrast with those of more sheltered conditions on the inner side. The assemblages and several species rare for south eastern England. It is one of the most important marine sites in the region. The presence of deep pools on the shore enables shallow and littoral algal species, including the large kelps, to be found. Japanese seaweed *Sargassum muticum* has also invaded the site. The rock overhangs are rich in invertebrates, including sponges and tunicates, a are the undersides of boulders in the lagoons. Piddocks are dense in the soft rock flooring the lagoons and there is a rich sessile and free living fauna.

Geology
The site is important for earth science interests, particularly for its chalk stratigraphy, periglacial geomorphology and the study of chalk landscape evolution.

The cliff section between Seaford and Cuckmere provides extensive stratigraphically complete exposures of Coniacian, Santonian and lowermost Campanian aged Chalk and includes the Lewes, Seaford and Newhaven Chalk Members. The site contains the candidate Global Stratotype sections for the bases of the of the Santonian and Campanian Stages as well as the recognised stratotypes for the Seaford Chalk and other units of the underlying Lewes Chalk. The section has been well documented over the past hundred years, both for its rich fossil faunas and sedimentological features. The latter includes calcarenite chalks, now interpreted as the product of slumping and synsedimentary tectonics. Recent studies using both fossial faunas and

sedimentological data have assisted in the construction and interpretation of Upper Cretaceous sea-level curves and schemes of sequence stratigrpahy reflecting both tectonic events within the basin and extra-basinal global changes in sea level.

Birling Gap is a key site for periglacial geomorphology and the study of chalk landscape evolution. The sea cliffs at Birling Gap provide the best example of a complete cross-section through a dry valley anywhere in Britain. A complex series of solifluction deposits on the floor of the valley overlie deeply weathered chalk. The deposits have been affected by large-scale contortions which may have originated when permafrost melted at the end of the Devensian Stage. A well-developed layer of these involutions underlies the valley sides, merging into the solifluction deposits on the valley floor.

Cow Gap is an important site for another aspect of periglacial geomorphology and the study of chalk landscape evolution. It is one of a set of otherwise unique amphitheatre-like embayments cut into the face of the Chalk escarpment between Eastbourne and Beachy Head. These features are thought to have been produced by bodies of snow or ice under very cold climatic conditions, which developed at some stage before the late Devensian. Cow Gap, which is truncated by the cliff line, provides the best known exposure of the deposits related to a scarp face embayment. The infill deposits are the product of solifluction and sediments deposited by meltwater, and preserve an important sequence of Devensian late glacial and Flandrian molluscan faunas and a late glacial fossil soil.

Beachy Head Cave is the largest and best developed example in Britain of a phreatic conduit in chalk. It is the only cave of this type with any significant length of accessible passage. The cave was formed by water flowing at high pressure beneath the water table. It is therefore important for demonstrating the role and existence of conduit flow is chalk. The age of the cave is unknown, but it is clear that it is a relict example of the passages that extend beneath currently active chalk sinks.

Seaford-Beachy Head is a key site for coastal geomorphology, comprising a cliff-beach-shore platform system developed on chalk. The site includes the classic coastal cliffs of Beachy Head and the Seven Sisters. In contrast with the cliffs at Foreness Point (Kent) and Kingsdown – Dover (Kent) where structural controls prevail, the plan of the Seaford – Beachy Head coastline is controlled primarily by wave energy; with the dominant and prevailing wave energy from the southwest. The beach is one of six major south west facing beaches in southern England and all of the others differ significanclty in geological characteristics. In addition the beach is the most rapidly and consistently fed by flint from cliff falls.

Other Information:
This site occurs within the South Downs Natural Area. Seaford to Beachy Head is described in ‘A Nature Conservation Review’ (NCR) and will be listed in ‘A Geological Conservation Review’ (GCR). The site lies within the Sussex Downs Area of Outstanding Natural Beauty (AONB). The Seven Sisters Country Park and part of the Heritage Coast lie within the site and are managed by the Sussex Downs Conservation Board. Seaford Head Local Nature Reserve (LNR) is managed by Lewes District Council.