

Site Name: Pakefield to Easton Bavents **County:** Suffolk

District: Waveney District Council

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 substituted by Schedule 9 to the Countryside & Rights of Way Act 2000.

Local Planning Authority: Waveney District Council

National Grid reference: TM 521828 **Area:** 735.33ha

Ordnance Survey Sheet: 156 **1:10,000:** TM57 NW,
TM 58NW,
TM 58 SW

Previous Notification Date: 7 September **Notification Date:** 8 December
(under 1981 Act) 1989 2005

Reasons for Notification:

Pakefield to Easton Bavents is nationally important for the geological exposures of the Lower Pleistocene Norwich Crag Formations and associated Pleistocene vertebrate assemblages, and the coastal geomorphology of Benacre Ness. The site is also nationally important for its vegetated shingle features, saline lagoons, flood-plain fens, an assemblage of nationally rare and nationally scarce vascular plants, scarce breeding birds, four breeding bird assemblages in four different habitats and wintering bitterns *Botaurus stellaris*.

General description:

Geology

The two low cliffs between Easton Broad and Southwold provide excellent exposures of the three major elements of the Norwich Crag Formation; the Crag itself (Chillesford Church Member), the Baventian Clay (Easton Bavents Member) and the Westleton Beds (Westleton Member). This is the type locality for the Baventian Cold Stage. The stratigraphical relationship of the Antian to the Bramertonian stage and of the Baventian to the Pre-Pastonian stage is well represented and is important for research into those relationships.

The basal Norwich Crag Formation sands are rich in marine Mollusca and have yielded important vertebrate remains. Pollen and foraminiferal evidence from horizons within both the Norwich Crag (Antian) and the overlying Easton Bavents Member (Antian to early Baventian) show a deterioration of climate, and permit regional, and basin-wide correlation with the more extended Pleistocene sequences of the Ludham borehole in Norfolk and sites in the Netherlands. The sequence is capped by excellent exposures of gravel-lined rip channels of the Westleton (Beds) Member – presently assigned to the Pastonian Stage.

The exposed sediments at Easton Bavents and Covehithe are of national importance for stratigraphical and palaeoenvironmental studies of the Lower Pleistocene in Britain. The relationship between units at this site and elsewhere remains unresolved, and further sedimentological, palaeontological and palynological studies of these beds will be necessary if a resolution of these issues is to be achieved.

The Chillesford Church Member in the cliffs and foreshore exposures at Easton Bavents has yielded the bones and teeth of a variety of mammals and other vertebrates. Mammoth *Mammuthus meridionalis* and horse *Equus stenorhinus* have been listed from the lower part of the Chillesford Church Member, whilst mammoth, gomphothere mastodon *Anancus arvernensis* and comb-antlered deer *Eucladoceras falconeri* and *Eucladoceras* sp. have been recovered from the upper part of the member. Giant deer *Megaloceros verticornis*, baleen whale *Balaena* sp., beaver *Castor* sp, hippopotamus *Hippopotamus* sp., and possible rhinoceros *Rhinocerotidae*, and the extinct clawless otter *Enhydra reevei* have also been recorded. The presence of teeth belonging to the extinct cheetah *Acinomyx pardinensis* is of particular note. Rodents are represented by the voles *Mymomys pliocaenicus*, *M. reidii* and *M. blanci*.

This site is of major importance to Quaternary studies in Britain as it has proved to be the source of a significant Early Pleistocene mammalian assemblage of which the microtine rodent (vole) assemblages are of particular value for correlation with other Norwich Crag successions in East Anglia.

Coastal Geomorphology

Benacre Ness is an important example of a mobile ness formed in shingle. It is important for studying the linkage between coastal form and coastal process dynamics and additionally for research into the links between longshore and offshore sediment transport.

The site comprises three landform units:

- i) Benacre Ness, formed of sand and shingle ridges, has a long history of mainly northward movement as material accretes on its northern shore and is eroded from the southern edge;
- ii) The eroding cliffs at Covehithe are cut mainly in fluvio-glacial sands, and have a fringing beach of sand and shingle, this is the most rapidly eroding area on the English coast;
- iii) A beach ridge fronting Benacre Broad and the Denes that is retreating landwards as a result of coastal erosion.

Vegetated shingle

The nationally important area of vegetated shingle occurs on Benacre Ness. This extends over 3.5 km along the coast and totals in excess of 70 hectares and includes areas of vegetation on sand and shingle. The vegetation on the ness can be divided into three main areas. At the southern end of the Ness there is eroding shingle, which lies seaward of stable shingle surfaces, sand dunes and sandy grassland. The central section of the ness has the main areas of open, vegetated and disturbed shingle ridges. The northern section of the ness supports sandy grassland on the landward edge and has open marram grass communities.

The ness displays a sequence of habitats from south to north. In the south stable shingle habitats contain largely short, species poor grassland with buck's-horn plantain *Plantago coronopus*, biting stonecrop *Sedum acre*, and the moss *Ceratodon purpureus*. Disturbed open shingle occasionally includes plants of yellow horned-poppy *Glaucium flavum*. Disturbance of the shingle surface has led to the colonisation of these, more open areas by a number of species including false oat-grass *Arrhenatherum elatius*, common mouse-ear *Cerastium fontanum* and sea pea *Lathyrus japonicus*. The eroding foreshore is a mixture of tussocks of marram grass *Ammophila arenaria*, and individual plants of sea beet *Beta vulgaris* ssp *maritima*, sea-kale *Crambe maritima*, yellow horned-poppy, curled dock *Rumex crispus* and sea radish *Raphanus raphanistrum* ssp *maritimus*.

The central section includes more clearly delineated shingle ridges. The plants growing here include biting stone-crop, red fescue *Festuca rubra*, buck's horn plantain, sea sandwort *Honckenia peploides* and the lichen *Cladonia furcata*. Towards the north of this section the shingle ridges become less evident and patches of sea pea lie alongside taller vegetation.

The northern section of the ness is almost completely dominated by marram grass, except for where it grades into shingle communities and into wetter conditions. Within this area are species typical of saline influences such as saltwort *Salsola kali*, annual sea blite *Suaeda maritima*, saltmarsh-grass *Puccinella* ssp, and lesser sea-spurrey *Spergularia marina*.

Saline lagoons

The north Suffolk Broads within this site are a valuable suite of lagoons that include artificial systems (e.g. the Denes) and natural bar built percolation lagoons representing a range of salinities from the low salinity Easton Broad in the south to the most saline Benacre Broad in the north. The lagoons contain two marine species currently considered nationally rare or scarce, these are the starlet sea anemone *Nematostella vectensis*, and the lagoonal sand shrimp *Gammarus insensibilis*.

Flood-plain Fens

Flood-plain fen habitats are found in the valleys at Benacre, Covehithe, and the Easton Valley. Common reed *Phragmites australis* is dominant. In wetter conditions species such as purple-loosestrife *Lythrum salicaria*, yellow loosestrife *Lysimachia vulgaris*, great willowherb *Epilobium hirsutum* and hemp-agrimony *Eupatorium cannabinum* may be found. In drier locations species such as creeping thistle *Cirsium arvense*, false oat-grass *Arrhenatherum elatius*, cleavers *Galium aparine* and perennial sow-thistle *Sonchus arvensis* are present. Saline influences in the reedbed are indicated by scattered plants of sea aster *Aster tripolium* and spear-leaved orache *Atriplex prostrata*. Brackish sites support swamps dominated by sea club-rush *Bolboschoenus maritimus*. Some scrub woodland is to be found on the flood plain. This is typically dominated by alder *Alnus glutinosa*, grey willow *Salix cinerea* and downy birch *Betula pubescens*.

Assemblage of nationally rare and nationally scarce plants

This site supports an assemblage of nationally rare and nationally scarce vascular plants, including marsh-mallow *Althaea officinalis*, grey hair-grass *Corynephorus*

canescens, mossy stonecrop *Crassula tillaea*, sea pea *Lathyrus japonicus*, bur medick *Medicago minima*, bulbous meadow-grass *Poa bulbosa*, spiral tasselweed *Ruppia cirrhosa*, marsh sow-thistle *Sonchus palustris*, clustered clover *Trifolium glomeratum*, suffocated clover *Trifolium suffocatum*, dune fescue *Vulpia fasciculata* and dwarf eelgrass *Zostera noltei*.

Populations of scarce breeding birds

The site supports nationally important populations of breeding bittern *Botaurus stellaris*, marsh harrier *Circus aeruginosus*, little tern *Sterna albifrons*, water rail *Rallus aquaticus* and bearded tit *Panurus biarmicus*.

Breeding bird assemblages

Pakefield to Easton Bavents SSSI supports nationally important breeding bird assemblages of lowland open water and their margins, lowland heath, scrub and woodland. The assemblage of breeding birds of lowland open water and their margins includes bittern, gadwall *Anas strepera*, and marsh harrier. The lowland heath assemblage includes hobby *Falco subbuteo*, quail, *Coturnix coturnix* and woodlark *Lullula arborea*. The assemblage of species breeding in scrub includes cuckoo *Cuculus canorus*, nightingale *Luscinia megarhynchos* and grasshopper warbler *Locustella naevia*. Twenty four species of bird representative of woodland bird assemblages include, sparrowhawk *Accipiter nisus*, willow tit *Parus montanus* and nuthatch *Sitta europea*.

Population of wintering bitterns

The reedbeds in the SSSI are used by 1% or more of the total non-breeding population of bitterns.

Other information:

- The coastline sections include three Geological Conservation Review (GCR) Sites.
- Part of this site lies within the Benacre National Nature Reserve (NNR), declared under the Wildlife and Countryside Act, 1981 in May 1987.

Part of Pakefield to Easton Bavents SSSI lies within the Heritage Coast and Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB).