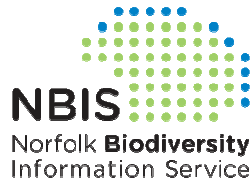


# North Norfolk District State of the Environment Report



Produced by Norfolk Biodiversity Information Service  
Summer 2011

Norfolk Biodiversity Information Service (NBIS) is a Local Record Centre holding information on species, geodiversity, habitats and protected sites for the county of Norfolk. For more information see our website: [www.nbis.org.uk](http://www.nbis.org.uk)



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## Acknowledgements

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**Introduction**

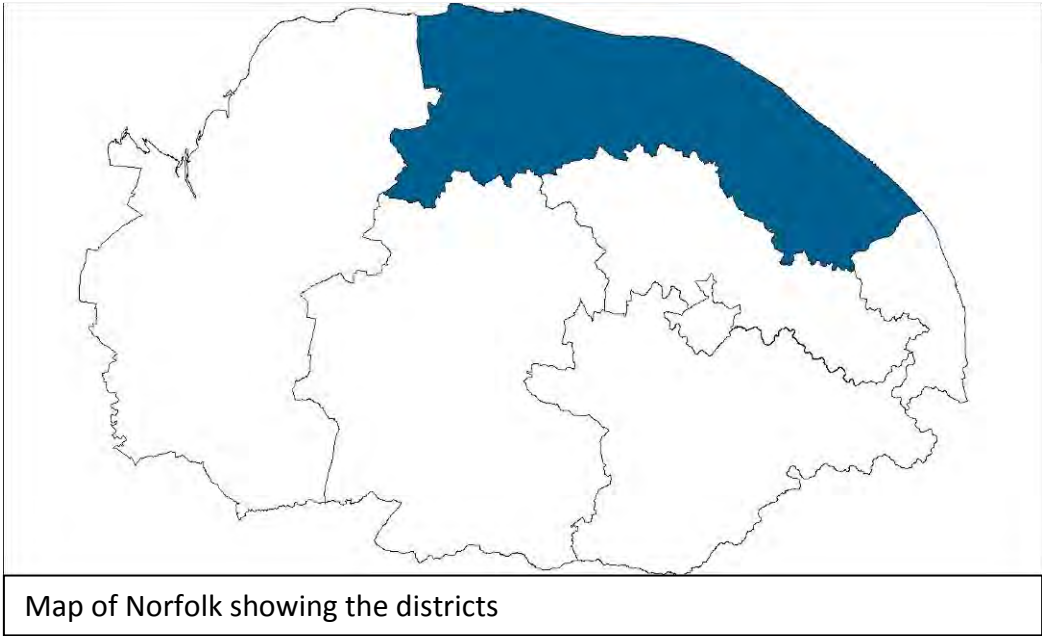
North Norfolk District covers an area of approximately 99000ha, including about 43 miles (70km) of the Norfolk coastline. The district contains many important and protected sites as well as priority habitats, species, geodiversity and historic environment sites. There are numerous groups and organisations working to protect and enhance the biodiversity, geodiversity and environment of the region.

This State of the Environment Report was prepared by Norfolk Biodiversity Information Service (NBIS) with input from a wide range of individuals and organisations.

The main aims of the report are to showcase the environmental data available for the district to determine the state of the North Norfolk environment, presenting this in a clear and accessible format, and to highlight some of the conservation work taking place across the district and the special habitats, species and sites it is trying to protect. The information contained in this report also acts as a baseline against which future change can be measured.

A number of the measures are compared to other districts within Norfolk and in relation to the county as a whole. Case studies from a range of organisations and individuals involved in the North Norfolk environment are also included.

The map below shows the districts within Norfolk, with North Norfolk district shaded blue.



Map of Norfolk showing the districts

**Designated Sites**

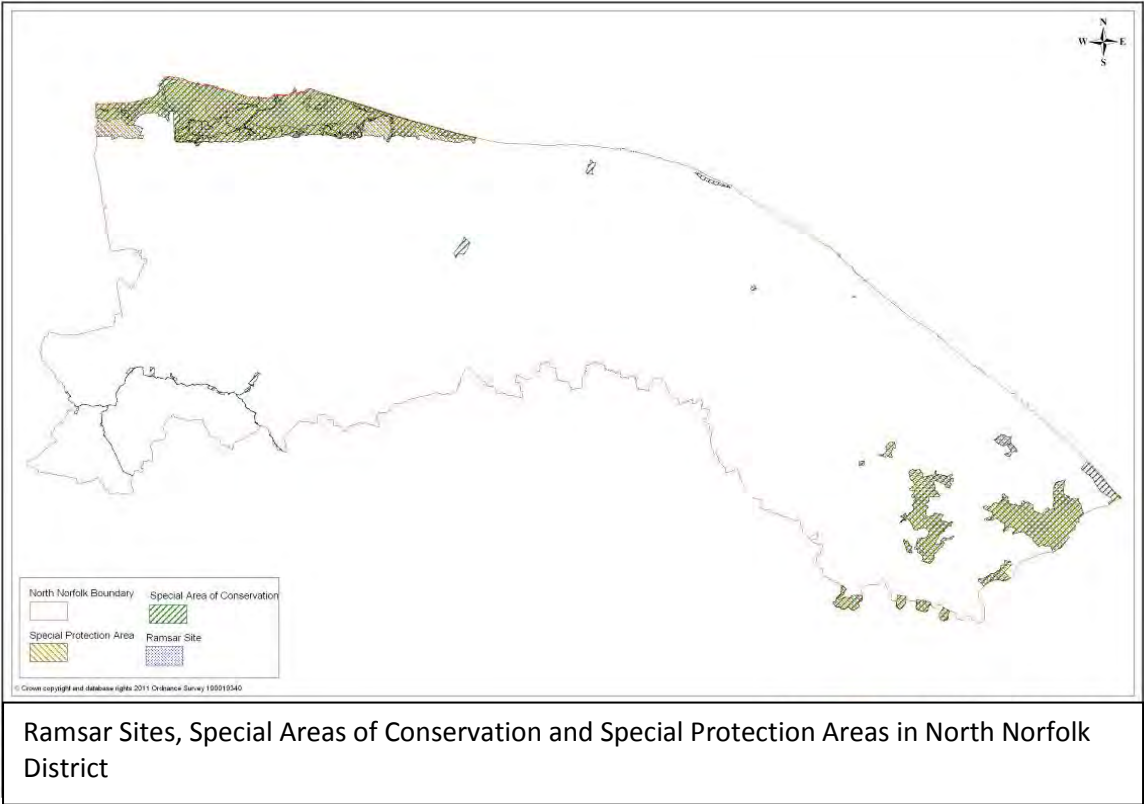
Designated sites are those areas which are particularly important for their features, flora or fauna. Some are designated under the terms of international or European agreements such as the Ramsar convention and the EC Habitats Directive. Others are protected by national law such as SSSIs and National Nature Reserves. All are specially managed to protect and preserve those features for which they are particularly valued. Many of them are open to the public and bring in large amounts of income to the local economy through tourism.

A knowledge of the extent and location of sites under such designations is important in order to be able to monitor their condition and ensure their protection in accordance with the directive under which they are designated.

This section also includes information on non-statutory sites such as County Wildlife Sites and County Geodiversity Sites. Important on a county level, while these sites are not protected by law, they are taken into account during the planning process and their condition is monitored for Central Government.

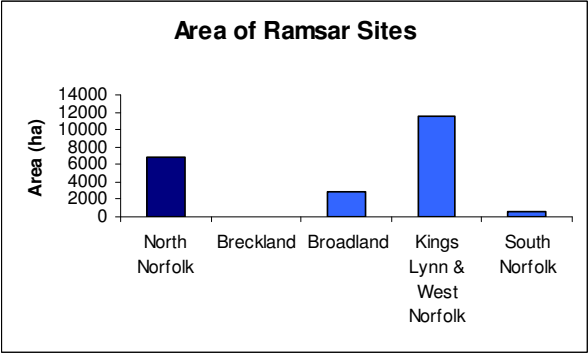
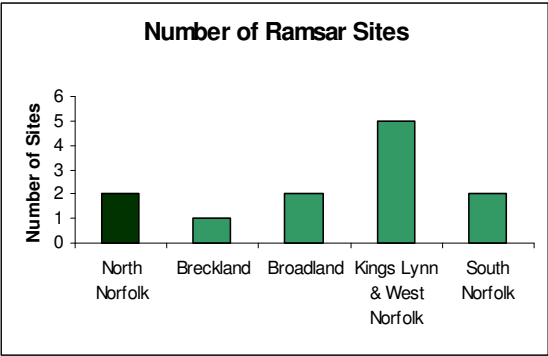
The statistics in this section of the report are mainly from the information NBIS holds about protected and important sites, as well as from the JNCC and Natural England websites.

**International and European Sites**



**Internationally Designated Sites**

**Ramsar Sites** are wetlands of international importance and are designated under the Ramsar Convention. Many are also very important for birds and are therefore also designated as Special Protection Areas. There are **two** Ramsar sites that each partially fall in North Norfolk – Broadland and the North Norfolk Coast - covering a total of **6864ha** of North Norfolk District.



North Norfolk District contains two large areas of important wetland sites, with only the district of Kings Lynn & West Norfolk containing a greater overall area. Habitats include the fen, freshwater pools, lakes and grazing marshes of The Broads and the saltmarshes, sand and shingle shores, saline lagoons and reedbeds of the North Norfolk Coast.

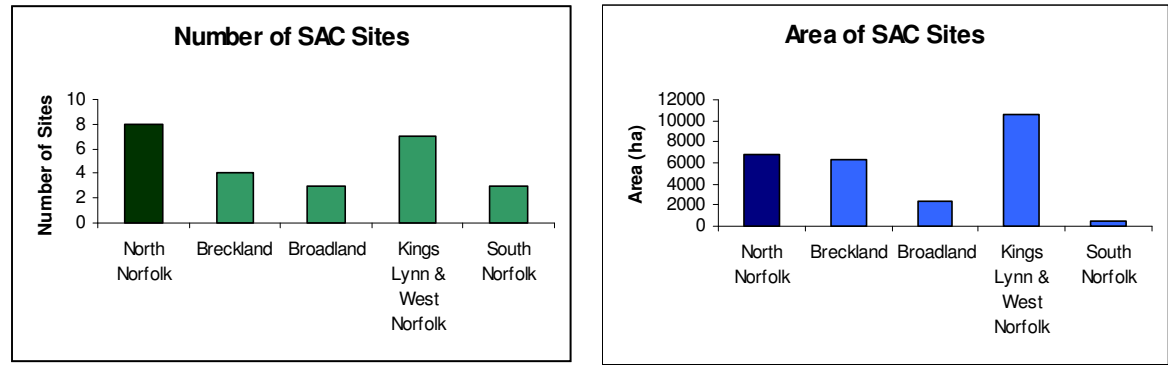
Part of the North Norfolk Coast was also designated a **UNESCO Biosphere Reserve** in 1976, demonstrating the area’s balanced relationship between man and nature. The North Norfolk Coast Biosphere Reserve runs along the coastline between Brancaster and Cley-next-the-Sea, and is made up of four sites, two of which (the former Blakeney Point SSSI and Cley & Salthouse Marshes) are located within North Norfolk District. The Reserve is important for tourism, with activities including birdwatching, sports and beach activities, as well as in agriculture and food production, education and research. It is also of great value for breeding and wintering wildfowl and migrant waders and for seals, and contains a wide range of habitat types.

Source: [www.ukmab.net/north-norfolk-coast-biosphere-reserve/](http://www.ukmab.net/north-norfolk-coast-biosphere-reserve/)

**European Designated Sites**

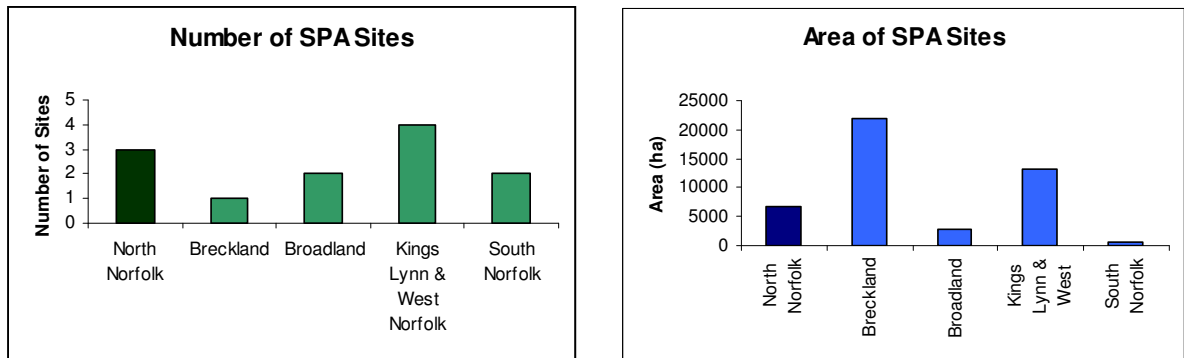
**Special Areas of Conservation (SACs)** are sites that are strictly protected under the EC Habitats Directive. Forming part of a European network (Natura 2000) these high quality sites make a significant contribution to conserving those habitats and species considered most in need of protection at a European level.

There are **eight** SACs either within or intersecting with North Norfolk, and they cover around **6880ha** (approximately 7%) of North Norfolk district.



North Norfolk has the highest number of SAC sites either within or intersecting its boundaries in the county. Although some of these sites are relatively small in area they are by no means unimportant. For example, Winterton-Horsey dunes represent the only significant area of dune heath on the East Coast, while the vegetated sea cliffs at Overstrand are one of the best examples of unprotected vegetated soft cliffs on the North Sea Coast.

**Special Protection Areas (SPAs)** form the other part of the Natura 2000 network and are designated due to their importance for birds, in accordance with the EC Birds Directive. There are **three** SPAs in North Norfolk, covering **6800ha**.



North Norfolk is especially important for migrant birds and as such has three designated SPAs covering around 7% of the district area. Broadland supports important breeding populations of bittern and marsh harrier, while the North Norfolk Coast SPA supports an 'internationally important assemblage of birds' including species such as pink footed geese, wigeon, avocet, knot and lapwing.



### **Condition Assessment of The Wash and North Norfolk Coast SAC**

Due to its important wildlife, The Wash and North Norfolk Coast is a designated European Marine Site (EMS) under the Habitat Regulations.

The EMS Management Scheme for the area, developed following extensive consultation acts to ensure that conservation goals are met by the management measures in place, and identify areas where further management may be needed.

In 2008, a Condition Assessment was conducted through the EMS Management Scheme in order that management measures could be updated to meet the new challenges identified.

One of the issues raised by the Condition Assessment was the 'need for survey to provide information to assess against baselines for samphire and other annuals colonising sand and mud.' Data were compiled and compared with baseline data, and the Condition Status for these species in 2010 was rated as 'Favourable'.

Another issue brought up by the 2008 Condition Assessment was a significant decline in common seal during moult counts. Further research has shown the 2010 Condition Status to be 'Unfavourable recovering' although there were increased numbers of pups and adults counted during the 2010 breeding survey.

Concern still remains however over the recent North Norfolk seal deaths and these are currently being investigated. 41 dead seals were found washed up in the vicinity of Blakeney Point between March 2009 and August 2010. All had the same severe spiral cut injuries on them, the cause of which is as yet unknown.

Source: [www.washandnorthnorfolkcoastems.co.uk](http://www.washandnorthnorfolkcoastems.co.uk)



Credit: Graeme Cresswell

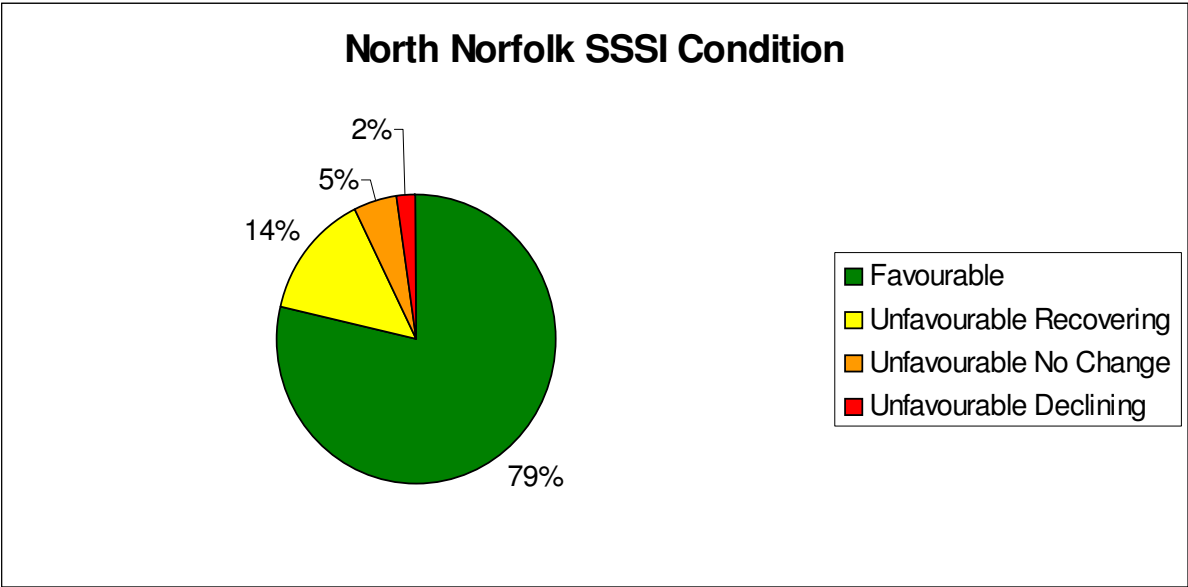


**Nationally Designated Sites**

**Sites of Special Scientific Interest (SSSIs)** are the country’s best sites for wildlife and geology. They have statutory protection under the Wildlife and Countryside Act 1981 as amended by the CROW Act 2000 and the NERC Act 2006. Many SSSIs are also international or European designated sites (Ramsar, SPA, SAC), National Nature Reserves or Local Nature Reserves. Natural England is responsible for identifying and designating England’s SSSIs.

North Norfolk District contains **44** SSSIs covering an area of **8066ha** (just over 8% of the district). 4548.32ha of this area is the North Norfolk Coast SSSI.

The condition of each SSSI is regularly assessed to determine the effectiveness of the management in place and whether any changes need to be made. When a site is in ‘favourable’ condition it is deemed as meeting its conservation objectives. The chart below (produced using information from the Natural England website) shows the percentage of North Norfolk SSSIs in each condition, based on the assessment compiled in May 2011:



**Kelling Heath SSSI**

This heathland site of almost 90ha is currently in Unfavourable but Recovering condition. Management of the site has included the clearance of birch, gorse and bracken, and the creation of bare ground for invertebrates, which in turn provides an important food resources for the birds - including many amber listed species - which breed on the site.



**National Nature Reserves (NNRs)** are chosen as the best of the SSSIs. In addition to managing rare and significant habitats, species and geology the majority of reserves are accessible and offer fantastic opportunities for people to get close to nature. There are **12** NNRs within or intersecting with North Norfolk covering a total area of **5491ha**:

- Ant Broads & Marshes

Blakeney

Bure Marshes

Calthorpe Broad

Hickling Broad

Holkham
- How Hill

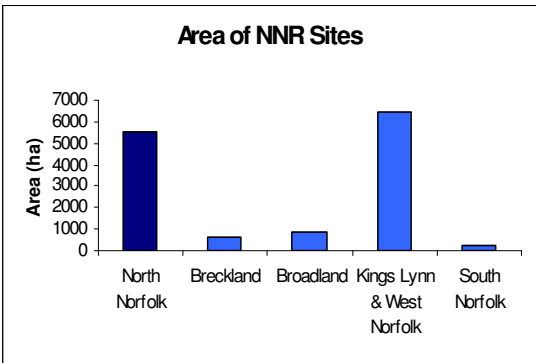
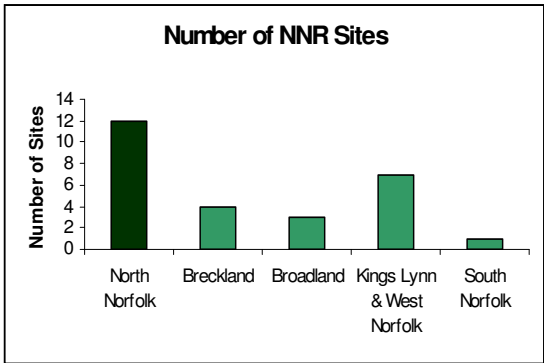
Ludham & Potter Heigham Marshes

Martham Broad

Paston Great Barn

Swanton Novers Wood

Winterton Dunes



North Norfolk has the highest number of National Nature Reserves of all the districts in Norfolk, and an area second only to Kings Lynn & West Norfolk. This means the residents of North Norfolk have a wealth of opportunities to get out and experience nature close up, and also acts as a significant draw for visitors.

**Paston Great Barn**



Photo Copyright © Adrian S Pye, licenced for reuse under this Creative Commons Licence

**Locally Designated Sites**

**Local Nature Reserves (LNRs)** are designated for the benefit of both people and wildlife. Designated and controlled by Local Authorities in consultation with Natural England, LNRs are important for wildlife, geology, education and/or public enjoyment. There are **five** LNRs within North Norfolk District, covering a total area of approximately **28ha**:

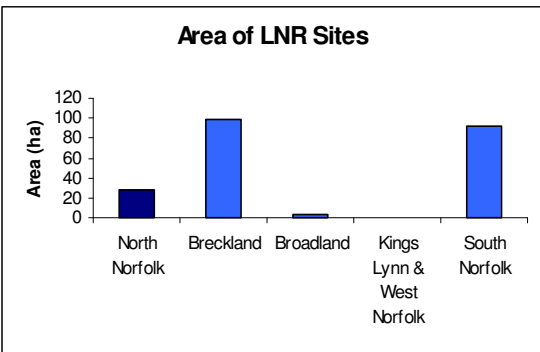
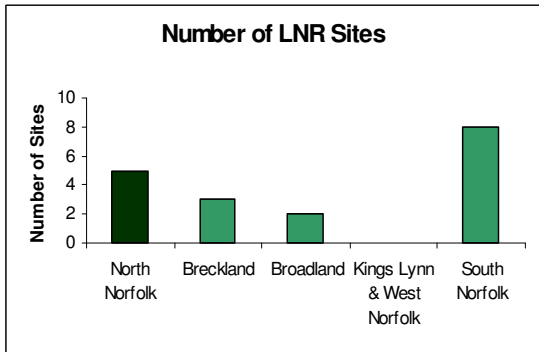
Knapton Cutting,  
Wiveton Down,  
Hindringham Meadows,  
Felmingham Cutting and  
Southrepps Common.



**Knapton Cutting**

Part of the former railway between North Walsham, Mundesley and Cromer, Knapton Cutting is now part of the Paston Way long distance footpath. Offering an ideal habitat for butterflies, this LNR is also a butterfly reserve.

Photo Copyright © Evelyn Simak, licenced for reuse under this Creative Commons Licence



The graphs show that North Norfolk has a relatively high number of Local Nature Reserves in comparison to many of the other Norfolk districts. The area covered by each site however is fairly small. However this does not mean that they are any less valuable.

**Non-Statutory Sites**

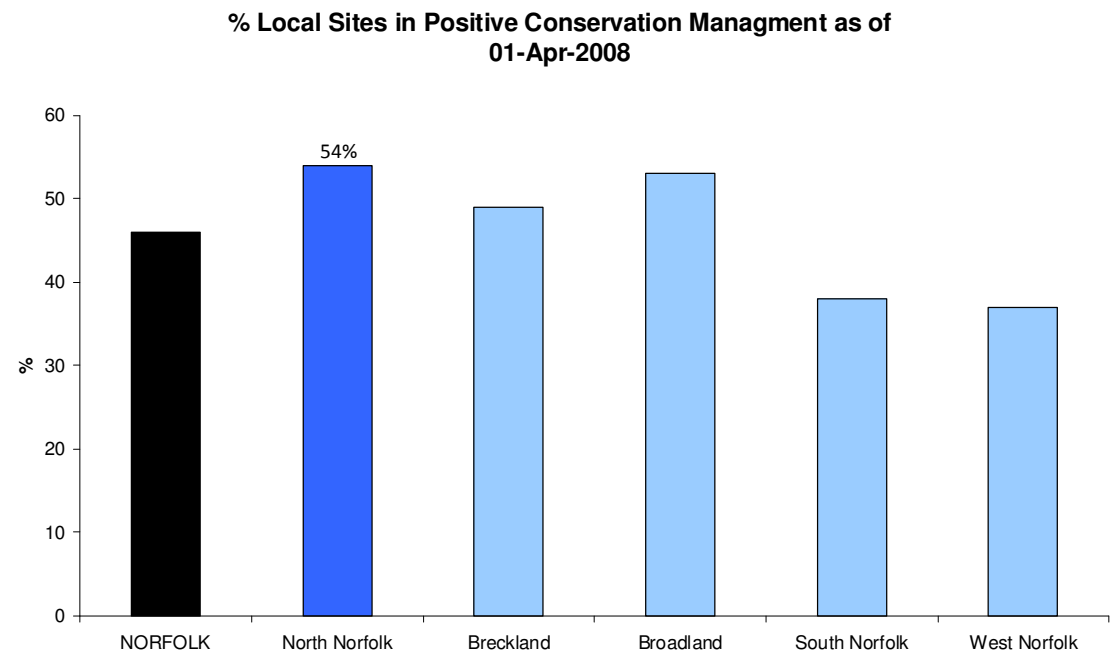
**County Wildlife Sites** (CWSs) are sites considered to be important for wildlife in a county context. They aim to identify, protect and enhance the most important places for wildlife outside legally protected land. While they do not have statutory protection they are taken into account in planning decisions. Most County Wildlife Sites are privately owned and have no public access.

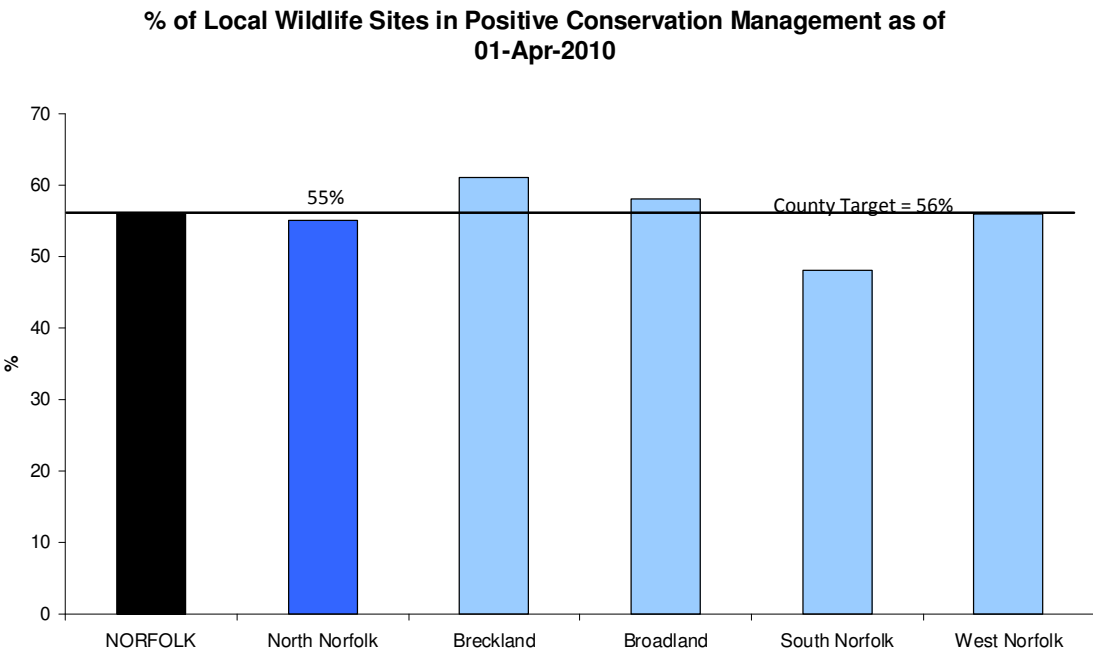
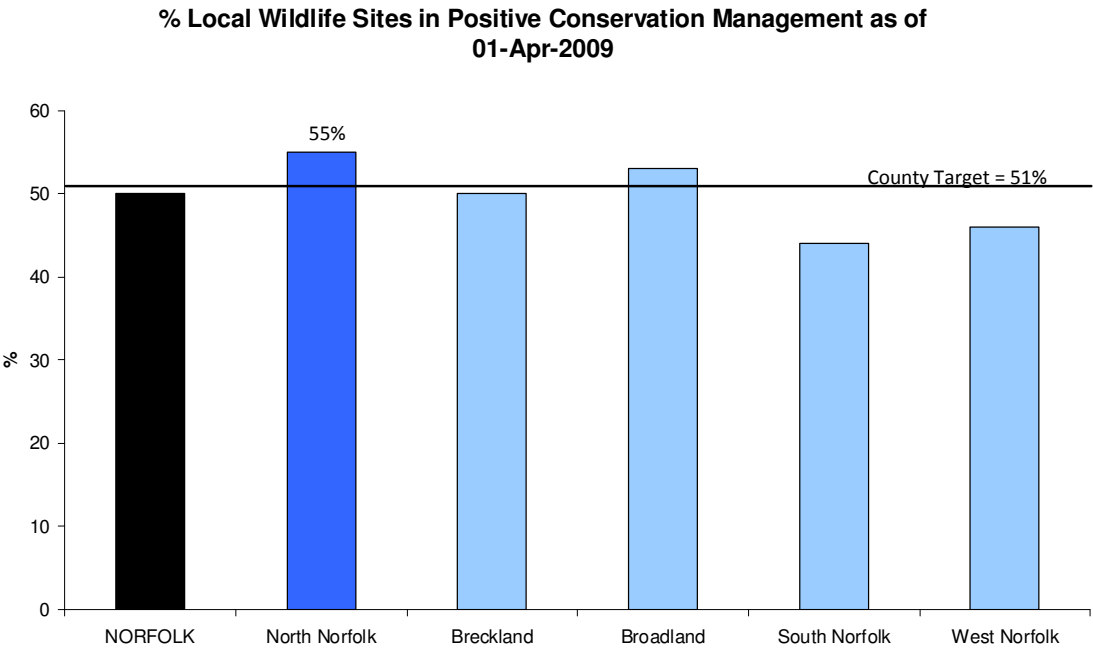
There are **250** County Wildlife Sites in North Norfolk. They cover an area of approximately **3081ha**, just over 3% of district area.

Over the last few years, Local Authorities have had a statutory duty to report on National Indicator 197 (NI197) to Central Government. NI197 is the proportion of Local Sites where positive conservation management has been or is being implemented. This acts as a cost effective proxy for determining improvements in biodiversity.

In the last few months, the National Indicator list has been replaced by the Single Data List. However Local Authorities are still required to provide data on the proportion of Local Sites in positive conservation management as part of their response to the Single Data list.

The graphs below compare the percentage of Local Sites positively managed for conservation in North Norfolk with other Norfolk districts and the county as a whole. During the first two years of NI197 reporting the percentage of North Norfolk Local Sites in positive conservation management was above the county average and (in 2009) above the county target. 2008 was the baseline year, hence there were no targets. In the year ending 1 April 2010 however, the percentage remained the same as the previous year (55%), which was below the county average and the county target of 56%. The figures for the year 2010/11 were not available at the time of writing.





**Roadside Nature Reserves (RNRs)** were established to protect and promote those road verges in Norfolk containing rare and scarce plant species. Norfolk's road verges are often of special botanical significance and act as havens for wildlife as they are not sprayed or fertilised. Co-ordinated by Norfolk County Council, the RNR scheme brings the most important verges into appropriate conservation management. There are **22** RNRs in North Norfolk with a total length in excess of **4300m**.



Credit: Norfolk County Council

**County Geodiversity Sites (CGSs)** – These used to be known as Regionally Important Geological Sites (RIGS) and had their name changed to reflect the importance of the geodiversity of a site in a county context.

There are two CGSs in North Norfolk – **Rising Hill** (a small private gravel pit in use by the owner, thereby ensuring fresh exposures) and **Hempton Quarry** (a landfilled former quarry with one of the quarry faces retained).



**Geodiversity Sites** are non-designated sites of geodiversity interest within the county of Norfolk, determined by the Norfolk Geodiversity Partnership. North Norfolk contains **57** geodiversity sites covering a wide variety of important geological features including:

- Briton's Lane Gravel Pit – an active quarry with a nationally important exposure of Pleistocene glacial and glaciofluvial sediments of the Cromer Ridge;
- East Runton Cliff – a cliff showing nationally important exposures of Lower Pleistocene 'Weybourne Crag' sediments of Pastonian and Pre-Pastonian age, with associated vertebrate fauna;
- Wells Railway Cutting – an old railway cutting now used as a contractors yard and the spot where a fossilised mammoth tusk and a Palaeolithic hand-axe were found.

**East Runton Cliff**



Photo Copyright © Evelyn Simak, licenced for reuse under this Creative Commons Licence



## Landscape

The stunning landscape of the North Norfolk Coast is a huge draw to visitors and is therefore extremely important to the North Norfolk economy. The importance and value of the area's landscape has been recognised through designations such as Area of Outstanding Natural Beauty and Heritage Coast. Through such designations these areas are protected and managed in order that their landscape character is preserved for future generations.

Much of the Norfolk Coast is designated an **Area of Outstanding Natural Beauty** (AONB) and this designation covers around **24000 ha** of North Norfolk, along **44.8km** of coastline. Areas are designated as AONBs for their high scenic quality and outstanding distinctive character, incorporating landscape character, biodiversity, geodiversity, historic and cultural environment. Their purpose is to protect and enhance this natural beauty, with care entrusted to local authorities, organisations, community groups and individuals who value them. Part of the AONB in North Norfolk is also a **Heritage Coast**. Heritage Coasts are designated for their natural beauty or scientific significance. Both apply to the North Norfolk Heritage Coast (which in its entirety stretches from Old Hunstanton to Weybourne) with its remote, wild and dynamic landscape and internationally important bird life. Heritage Coasts are non-statutory but are recognised within the planning system.



Salthouse. Credit: Megan Coombs

### **Managing the Norfolk Coast AONB**

The Norfolk Coast Partnership, set up in 1991, is made up of organisations involved in managing the AONB through implementing a co-ordinated Management Plan.

The overall aim of the Partnership is to “ensure that the use of the area is sustainable, that use of it does not destroy its natural beauty, and that future generations have the same opportunity to enjoy and benefit from it.”

The activities of the Norfolk Coast Partnership are guided by the 20 year vision, with five-year objectives designed to achieve this. An Action Plan, reviewed yearly, shows the steps to achieve the objectives.

The current five-year Action Plan runs from 2009-2014 and details a wide variety of projects and actions to be undertaken by the Partnership to achieve the 20 year vision of the AONB. Actions include:

- Act to reverse the decline of key beach-nesting bird species.
- Collate, develop and promote information on the area’s geodiversity.
- Undertake beach litter picking programmes.
- Develop guidance on reducing the effects of lighting on the area’s night skies.
- Encourage farmers to consider the wider parish, community and landscape within their environmental stewardship schemes.
- Undertake a study to assess the economic value of wildlife related tourism.

Source: [www.norfolkcoastaonb.org.uk](http://www.norfolkcoastaonb.org.uk)



Salthouse. Credit: Megan Coombs

## **Habitats**

North Norfolk has a fantastic variety of habitats – from windswept coastal dunes and saltmarshes to pockets of woodland and stately parks. Many of these habitats are recognised as important through the Biodiversity Action Plan (BAP) process, explained further below. Much of the district is dominated by arable fields, but good management can mean that these too can be of value to wildlife.

Knowing how much area of each habitat type is present within North Norfolk allows monitoring to take place to detect changes or losses to important habitat types. It can also inform projects aiming to recreate various habitat types as to where that re-creation would bring maximum benefits.

The information below was determined from the habitat and land-use mapping of the North Norfolk District area undertaken by NBIS. This mapping pulled together information from a variety of sources including Natural England Inventory mapping and mapping using aerial photographs. It is not possible to identify some of the habitats without ground truthing (particularly the different types of grassland) therefore this had to be classified as 'unidentified' until ground truthing can be carried out.

## **BAP Habitats**

The UK Biodiversity Action Plan (UKBAP) was published in response to the Convention on Biological Diversity signed in Rio in 1992. Local Biodiversity Action Plans (LBAPs) were also developed to identify local priority species and habitats and agree actions and targets for conserving them. Priority BAP habitats include a wide variety of semi-natural habitats that are particularly important for nature conservation. The Norfolk Biodiversity Action Plans are prepared and implemented by the Norfolk Biodiversity Partnership, which includes Local Authorities, statutory agencies and voluntary groups. There are currently 58 Species Action Plans and 20 Habitat Action Plans (with more in preparation).

North Norfolk contains many BAP priority habitats ranging from coastal sand dunes and maritime cliffs to wet woodland and acid grassland.

*Please note: The habitat areas given below are the maximum areas for each habitat type. Some of the actual values may be lower. This is a particular problem for habitats such as reedbed, which cannot be accurately mapped from aerial photography. NBIS maps habitats using the Natural England standard. This states that sites which partly contain a particular habitat of an unknown extent be mapped as that habitat.*

**Coastal BAP Habitats:**

- Coastal Sand Dune – Develops where large amounts of sand are blown landwards from the coast, and can support a wide range of vegetation types.



Coastal Sand Dune	459ha
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- Maritime Cliff & Slope – Sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion. Soft cliffs are formed in less resistant rocks such as shales or boulder clay, and being unstable they often form shallower slopes. Soft cliffs are found along much of the North Norfolk coastline, and are particularly important for invertebrates.



Maritime Cliff & Slope	674ha
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**Woodland BAP Habitats:**

- Wet Woodland – Generally found on fens in East Anglia, with alder, birch and willow usually the predominant tree species.



Wet Woodland	331ha
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- Wood Pasture and Parkland – Areas that have been managed by a long-established tradition of sustainable grazing. Tree and woodland structure shows the effects of large herbivore grazing. Old and veteran trees are present and the vegetation over the site is a mixture of woodland and open grass/heath communities.



Wood Pasture and Parkland	1974ha
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**Grassland BAP Habitats:**

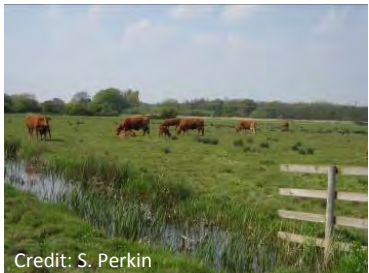
- Lowland Heathland & Acid Grassland – Heathland generally occurs on mineral soils and thin peats and contains vegetation with more than 25% cover of heather and/or gorse. Lowland heathland often occurs together with lowland dry acid grassland (also a BAP priority habitat) and it is often not possible to map the two separately.



Credit: Norfolk County Council

Lowland Heathland & Dry Acid Grassland	1109ha
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- Coastal and Floodplain Grazing Marsh – Pasture or meadow that is periodically inundated. Ditches maintain water levels and are especially rich in plants and invertebrates. Almost all areas are grazed or cut for hay or silage.



Credit: S. Perkin

Coastal and Floodplain Grazing Marsh	3455ha
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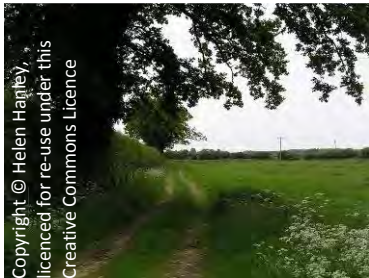
- Calcareous Grassland – Develops on shallow soils overlying limestone rocks such as chalk. Coverage of calcareous grassland has declined sharply in the last 50 years.



Credit: Lizzy Carroll

Calcareous Grassland	133ha
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- Unidentified Grassland – Much of the grassland could not be identified to type without ground truthing so has been classified as ‘unidentified grassland’.



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Unidentified Grassland	6380ha
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Freshwater BAP Habitats:

- Reedbed – A component of fens, this habitat type is dominated by Common Reed, *Phragmites australis*.



Reedbed	3627ha
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- Ponds

A report written by NBIS in 2010 showed that Norfolk has an incredibly high density of ponds. While North Norfolk may not have as many as the hotspots of the Breckland pingos or the South Norfolk Claylands, there are still **almost 3000** ponds in the district, and this does not include garden ponds.

Well managed ponds often contain a large number of species, including rare and threatened flora and fauna. However many pond species are under recorded, so we don't know which ponds are particularly important for wildlife.

The ponds on Manor Farm near Melton Constable have been extremely well recorded over the past few years, and they are also very well managed to improve their value for wildlife. Species recently recorded in the Manor Farm ponds have included fragile stonewort, great crested newt, lesser marshwort, scarce emerald damselfly and crucian carp (now a Norfolk BAP species).

Much of the management involves removing some of the trees and scrub from the banks of the ponds to avoid shading out the submerged vegetation, and de-silting the ponds in rotation.



Manor Farm Pond. Credit: Carl Sayer



Crucian Carp. Credit: Carl Sayer

**Marine BAP Habitats:**

- Saline lagoons

**Starlet Sea Anemone Translocation Project – Alison Evans, Natural England**

The Starlet Sea Anemone (*Nematostella vectensis*) is a Biodiversity Action Plan species, which, in Norfolk, is thought to be restricted to the saline marsh lagoons and ditches within the North Norfolk Coast Site of Special Scientific Interest (SSSI). During a survey in 2010, Natural England recorded these anemones in 10 out of 20 lagoons within the SSSI, which are also important for other specialist lagoon invertebrates and wading birds.

In July 2010, a team from Natural England relocated a sub-population of these rare creatures due to concerns that their lagoon – Half Moon Pond at Norfolk Wildlife Trust Cley Marshes – could be lost, resulting in a local extinction of the population.

Since the Cley-Salthouse shingle ridge has been allowed to evolve naturally with coastal processes, it has been moving steadily inland and it was feared that a big storm on a high tide could cause Half Moon Pond to be filled-in with shingle.

There were concerns that the Starlet Sea Anemone would not be able to disperse naturally to the rest of the lagoon system before Half Moon Pond was lost. So Natural England staff removed 1000 individual anemones, using a novel technique learned from researchers in the USA, and transported them to two alternative lagoons slightly inland and further along the coast in another Norfolk Wildlife Trust Reserve – Salthouse Marshes. Their new habitat is ideal, with interconnected lagoons of a similar temperature and salinity.

The lagoons will be re-visited again this year to try to assess the success of the translocation, and to gain further understanding of the species and its needs.

This exercise has bought more time for conservationists to figure out how best to manage this rare species in the face of a changing climate and coastline.



Credit: David North



- Saltmarsh

## **Stiffkey Saltmarsh – Dr Hannah Mossman & Prof Anthony Davy, UEA**

Stiffkey is best known for its infamous rector from the 1930s, Harold Davidson, and its distinctive cockles ('Stewkey Blues'). Fewer people may realize that it is home to one of the finest salt marshes in northern Europe. A beautifully stark landscape harbours important biodiversity, with a plethora of highly salt-tolerant plant species and fluctuating populations of migratory birds.

The marsh is divided into ecologically distinct upper and lower areas by a hooked shingle ridge, similar in structure to the one at nearby Blakeney Point. Both marshes have formed by the build-up of marine sediments deposited by the tides. Colonization by salt-tolerant plants helps to trap and stabilize the sediments – part of a process called ecological succession, which sees a sequence of species successively adapted to higher, better-drained elevations on the marsh. The upper marsh, landward of the ridge, is ancient, having been formed when the coastline stabilized in its current position after the rapid rise in sea-level associated with the end of the last glaciation, some 6-7000 years ago. The lower marsh, seaward of the ridge, is much younger, probably having developed on the sand flats in the last few hundred years, and is drained by small creeks directly to the sea.

Stiffkey marsh has now been a focus of research by ecologists and environmental scientists from the University of East Anglia for nearly 40 years. Currently, we are working to better understand the factors which determine the distributions of salt marsh plants. We have known for some time that species such as Sea Purslane (*Atriplex portulacoides*), a large bluish-green shrub, is dominant at higher elevations and on raised creek banks, whilst other species such as annual Samphire (*Salicornia*) are often found lower on the marsh. However, with the development of new technology a greater understanding of this complex environment is possible. For example, new satellite technology (GPS) now allows us to quickly and very accurately measure elevation, and the development of small pressure sensors allows us to directly calculate how frequently, and for how long, plants are inundated by the tide at different areas of the marsh.



The fascinating evolutionary adaptations of salt-marsh plants to the twin challenges of salinity and waterlogging, manifested in features ranging from biochemistry to life-history, have been dissected at Stiffkey. Just to survive there, these plants need to tolerate salt, avoid water stress and oxygenate their waterlogged roots. Apart from its value for biodiversity conservation, amenity and recreation, Stiffkey marsh has been aptly described as a field laboratory.

- Chalk Reef

**North Norfolk's Chalk Reef – Report on surveys conducted by Seasearch East.**  
**Rob Spray & Dawn Watson.**

*"Seeing the heart of the reef on the best dive day of 2010 was almost literally mind blowing. It made everyone...realise we were surveying something really, very special."*  
Rob Spray

North Norfolk is unique in East Anglia in having areas of rocky seabed where chalk is exposed sub- and inter-tidally. Sub-tidal chalk is a Biodiversity Action Plan (BAP) habitat. It is only found at around 1% of the UK coast line, yet this represents 75% of the marine chalk found in Europe.

With the support of Norfolk Biodiversity Partnership and Norfolk Biodiversity Information Service, Seasearch East - run by the Marine Conservation Society - attempted to survey the extent and biodiversity of the chalk reef off North Norfolk. Using the Seasearch method which uses amateur divers to record flora, fauna and habitats, boat and shore dives were made and records collected in summer 2010 between Cley and Trimmingham.

Chalk was found on every dive, and at 30km in length, the North Norfolk chalk reef is not just the longest in the UK but also in Europe. It could potentially be the longest in the world.

As the initial survey was only linear, accurate estimates can not yet be made of the total area of chalk present – indeed these surveys have just scratched the surface.

The reef was found to be a hotspot for biodiversity. Records were made of rock reef specific animals such as the Leopard Spotted Goby not previously known from this area. A total of 173 species were recorded during the survey, including 24 fish species, 23 crustaceans and 15 sponges.

Knowing about this reef is significant. The North Norfolk Coast was designated a UNESCO Biosphere Reserve (covering conservation, sustainable development, research & monitoring and training & development) long before this significant part of its environment was discovered. The reef could help cement this status, as retaining and protecting it will have benefits to both conservation and public awareness and eco-tourism in the area. It is also hoped that the North Norfolk chalk will be recognised as part of the Marine Conservation Zone process (see below) and that areas of the reef can be identified and designated by local agreement as reference zones which will serve as a control to monitor and evaluate the health of the reef as a whole.

**Marine Conservation Zones and NetGain**

The UK Government is committed to establishing a robust network of Marine Protected Areas (MPA) by 2012 under the Marine & Coastal Access Act (2009). One type of MPA is a Marine Conservation Zone (MCZ). NetGain is the North Sea Marine Conservation Zones Project. Its role is “to design a network of MCZs to safeguard and encourage recovery of marine biodiversity, and help to ensure the long-term sustainability of marine resources in the region.”

Source: [www.netgainmcz.org](http://www.netgainmcz.org)



Photos credit: Rob Spray & Dawn Watson

### Other Important Habitats

North Norfolk also includes habitats that, while not being designated as BAP priority habitats, are none the less important.

- Neutral Grassland – Traditionally grazing pasture or hay meadows, neutral grasslands are, by definition, neither highly acidic or alkaline and are often species rich. This category includes the BAP Priority habitat of Lowland Meadows, which are areas of unimproved neutral grassland.

Neutral Grassland	1199ha
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- Ancient Woodland – These are sites that have been woodland continuously since at least 1600AD. Rich both in wildlife and cultural heritage, these woodlands are irreplaceable – when they are lost, they're gone forever.



Ancient Woodland	678ha
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**Arable Habitats**

A large amount of the area of North Norfolk district is covered by arable fields – **61860ha** (almost 63% of the district area).

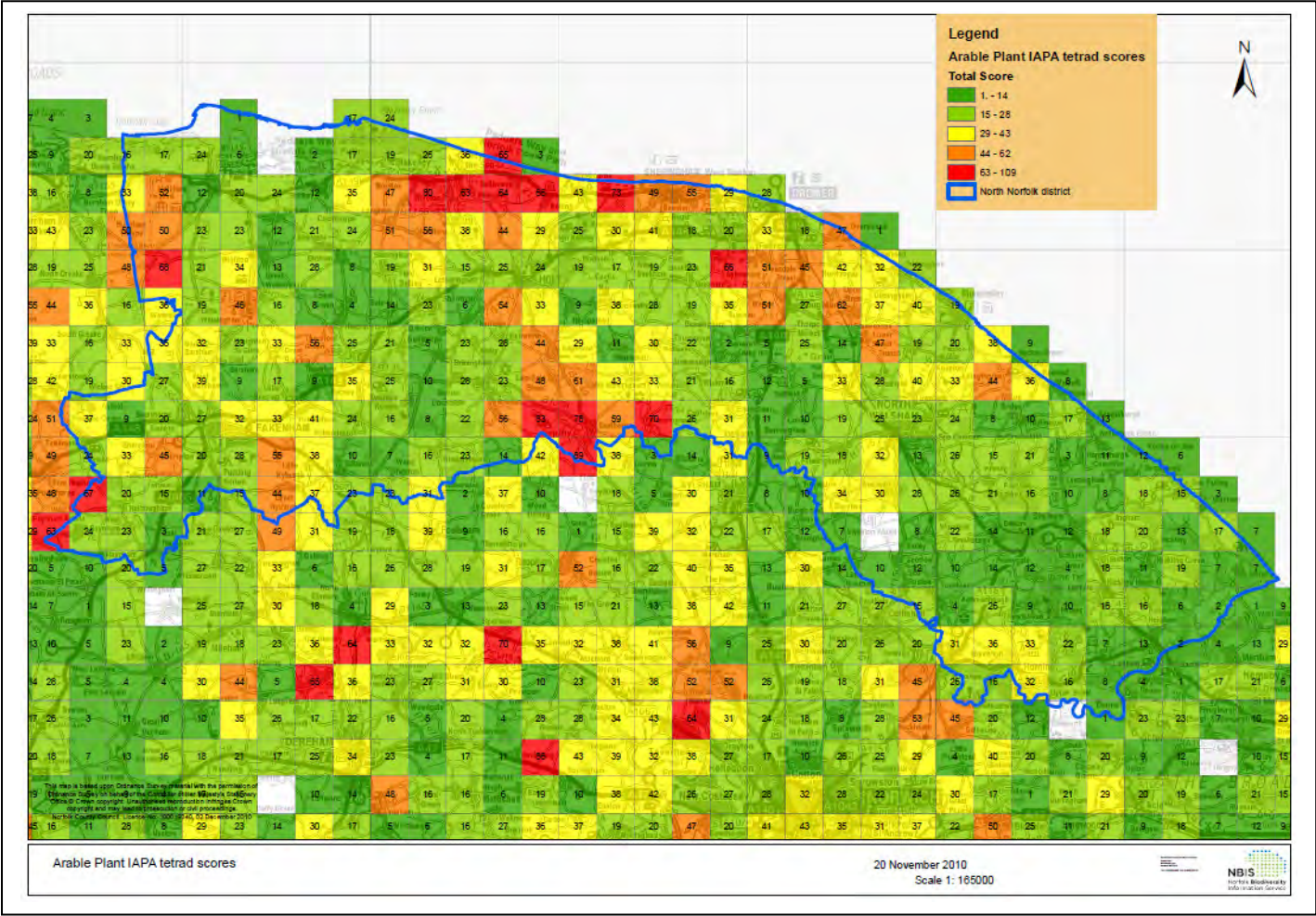


Vascular plants of arable land are some of the most threatened flora in the UK, with 54 species considered under threat and 7 regarded as extinct in arable areas. Reasons for decline include widespread herbicide use, increased use of nitrogen fertilisers, the shift from spring to autumn crop cultivation and the loss of field boundaries and less-cultivated margins (Byfield & Wilson 2005).



Arable farmland south of Stiffkey.

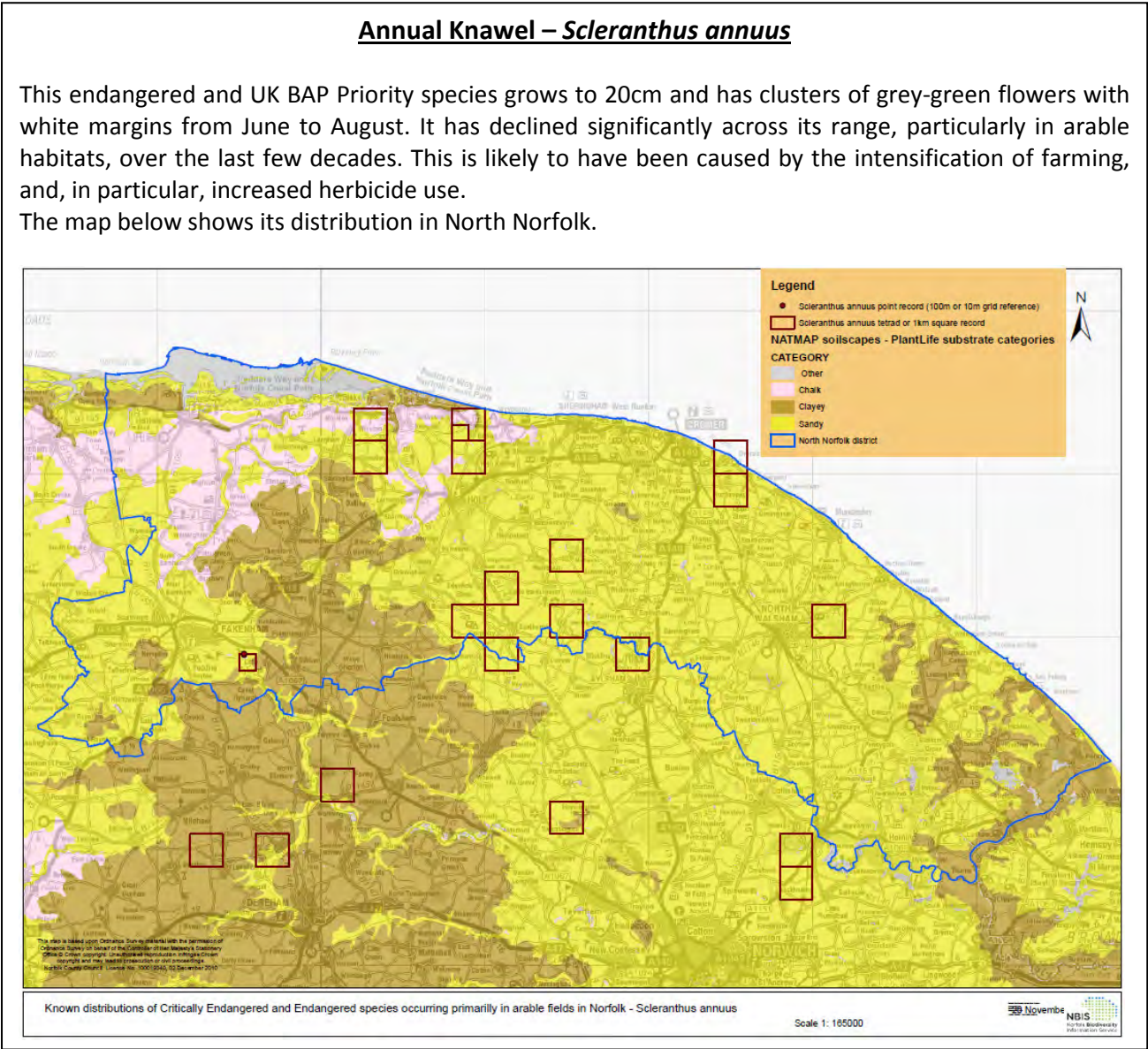
Arable plants are also some of the least studied flora. A recent study has been undertaken to determine the Important Arable Plants areas in Norfolk. The map below shows the results of this analysis for North Norfolk (Walker *et al.* 2011).



The map shows the district divided up into tetrad (2km) grid squares. Each square has a score based on the total cumulative scores of species present within it. Scores are assigned to the arable plants based on their current occurrence within 10km squares, their recent decline and their current species threat status. The squares are colour coded according to their score. The dark green squares have the lowest scores while the red squares show the 'hotspots' for important arable plants (Walker *et al.* 2011). It can be seen from the map that a number of 'hotspots' occur including some near Corpusty and others towards Salhouse.



An important mechanism for practically conserving important arable plant sites is the Environmental Stewardship Scheme. Such schemes pay farmers to establish herbicide- and fertiliser- free cultivated arable margins and other options favouring arable plant communities, such as overwintered stubbles, fallows and conservation headlands (Byfield & Wilson 2005). However, across Norfolk the uptake of these options has been low, possibly as the payments offered are low compared to the management input required (Walker *et al.* 2011).





**Species**

It is often the species found in North Norfolk that are such a draw for visitors to the area – particularly the migrant birds which are present in spectacular numbers in the autumn and winter months.

North Norfolk is also home to many rare and threatened species. Knowledge of the distribution and numbers of such species is important in order for their populations to be carefully monitored, and helped if necessary. As many of these rare species are also legally protected, it is important for their whereabouts to be known when developments that could potentially disturb or threaten them are planned. Non-native invasive species are also a continuing problem across Norfolk. It is important that their distribution and abundance is monitored so that their spread can be checked and their impact minimised.

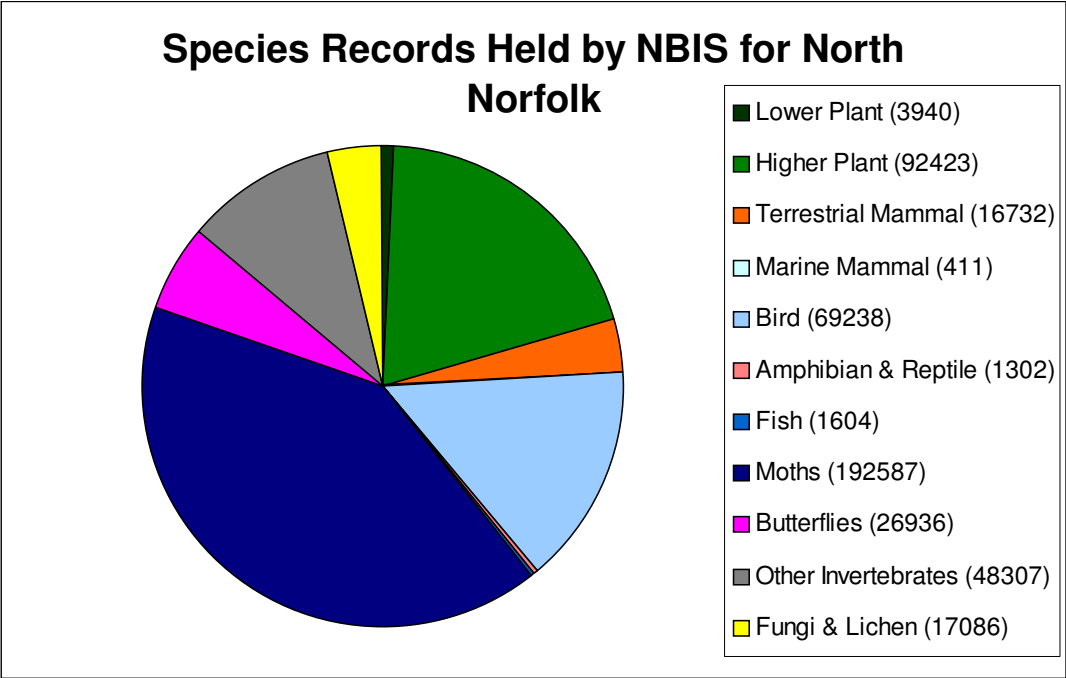
The statistics in this section are from the NBIS database. NBIS collect, collate and hold species information for the whole of Norfolk and provide that information to anyone with an interest in Norfolk’s wildlife. The data held by NBIS are also used during the planning process to inform ecological survey work, and for conservation purposes.



“Having quick and easy access to the species and habitat data held by NBIS has been invaluable for North Norfolk District Council over the last 12 months. Not only does the agreement enable the Council to demonstrate how it is complying with the Duty to conserve and enhance biodiversity under the NERC Act (2006), but the information supplied by NBIS has allowed the Council, in particular the Planning Department, to focus its resources on areas which have seen the greatest threat for biodiversity and areas which had the greatest potential gain for biodiversity. This has been particularly pertinent given the current financial and resource pressures placed on Local Authorities and the need to demonstrate value for money.”

**Kerys Witton, Landscape Officer, North Norfolk District Council.**

NBIS holds **over 487000** individual species records for North Norfolk, covering the time period 1700-2010. The chart below shows that the group for which the largest number of records is held is moths, with birds and higher plants also fairly well represented. Our data holdings are much lower for lower plants (such as mosses and ferns), marine mammals, amphibians and reptiles and fish.



**Species of Conservation Concern**

Included in the NBIS species data holdings for North Norfolk are **98943 records** of Species of Conservation Concern, covering just fewer than **1300 species**.

These include:

- 254** species on the **UKBAP** list;
- 154** species protected by the **Wildlife and Countryside Act**;
- 361** species on the **IUCN Red Data List** (including **9** Critically Endangered);
- 77** species protected by the **EC Birds Directive**; and
- 36 Red** and **133 Amber** listed bird species.

Many of the species are covered by more than one designation.

### **Little Terns on the Norfolk Coast – Phil Pearson, RSPB**

The little tern is Europe's smallest tern species and one of Britain's rarest breeding seabirds. The UK population is estimated at only 1900 pairs. Norfolk's sand and shingle beaches support a significant proportion of all UK little terns, with over 700 pairs recorded in 2009. The county is therefore highly important in the conservation of little terns.

Little terns are summer visitors to the UK, usually arriving in mid-April from Africa and leaving by September.

Social nesting colonies are formed on sand and shingle beaches that offer good visibility for predator detection. The colonies also locate close to areas with good food availability, as breeding birds will travel no more than 3-4km from the colony to forage.

Unfortunately for the little terns, the ideal nesting sites in north Norfolk are also used by large numbers of people. Walking, dog-walking, kiting and other activities can all reduce the suitability of a breeding area and cause colonies to desert. Currently, due to recreational disturbance and predation pressures, colonies are not producing enough chicks to maintain the population in the long term. Fortunately little terns are relatively long lived (typically 12 years).

In order to improve the fortunes of little terns in Norfolk a number of important achievements have been made. In June 2010 the Norfolk Little Tern Species Action Plan was completed. This provides a means to coordinate current efforts to manage little terns, whilst hopefully providing opportunities to improve management through new funding and greater community involvement. In February 2011, funding was secured for a 'flying fence' that could be deployed to a single site, or split into several smaller fences. To date this fencing has been used to protect breeding little terns at Caistor, Eccles and Winterton Dunes. The fencing will be managed through a newly established little tern working group consisting of representatives from all organisations managing little terns and other coastal species and habitats around the Norfolk Coast.

At the time of writing the breeding season has not finished, but indications are that the east Norfolk colonies have produced good numbers of chicks this season. Predation levels at these colonies appear reduced compared to previous years, and it is hoped that 2011 will be one of the most successful for sometime.

Any success would not be possible without the support of the RSPB's little tern wardens and the army of highly dedicated volunteers that help to monitor and protect the breeding colonies.



Credit: Kevin Simmonds

Natterjack Toads are endangered in the UK and protected under the Wildlife and Countryside Act 1981. Favoured sandy habitats, they are found in a number of locations in North Norfolk including Syderstone Common and Winterton Dunes. The case study below details work being done to help natterjack toads just outside of North Norfolk district, illustrating the successes and the challenges of such work.

### **Natterjack Toads at Holme Dunes – Gary Hibberd, Norfolk Wildlife Trust**

The natterjack toad (*Bufo calamita*) was first translocated to NWT Holme Dunes in the early 1980's from stock donated from Winterton Dunes. The first introduction began in 1982 when 2500 tadpoles from 8 strings of spawn were introduced, with small numbers of toadlets emerging. By 1983 introduced spawn strings were seeing hundreds of toadlets emerging, and 3 new scrapes were created. The last strings of spawn were hatched in captivity and released in 1984.

In 1985 the first males were heard to call from the ponds and the first of 8 strings were laid naturally. Toadlet production was however low. After gradual spawn production of 16 (1986) and 21 (1987) strings producing hundreds of toadlets, a sudden increase was noted in 1990 when 161 strings were laid with thousands of toadlets emerging.

The 1990s was a very productive decade, especially the latter half when from 1998-2000 265, 285 and 272 string totals respectively were laid, all with large toadlet emergence, this large productivity certainly stabilising the population. At this time many males were beginning to move away from the natal site, with animals being heard and seen in Thornham and Holme villages, and one making it as far inland as Ringstead.

The new millennium has however begun poorly with 3 complete failure years (2002, 2005 and 2011), small toadlet emergence (2001, 2004, 2008-10) with only 2006-07 having moderate numbers. The low winter rainfall and two successive dry springs have not helped with 2011 only having 3 strings laid and no toadlet emergence.

Although females can live to a decent age, they take 3 years to reach maturity, with mortality hitting them hardest during spawning. Topping up the reserves population will soon require a run of wet winters and springs.

Along with rainfall the other factors required to maintain a healthy population are their terrestrial habitats. Short sward and broken ground are crucial for the animals' movements and food sources. The rabbit population and a temporary flock of Shetland sheep help to achieve this. Scrub (mostly sea buckthorn) and more vigorous grasses (bush-grass) have to be managed by staff, through spraying and cutting during late summer, autumn and winter.





**Non Native Species**


NBIS holds **3548 records** of non-native invasive species (based on the Norfolk Non-native Species Initiative Long List) from between 1906 and 2010 (2669 of these records are from 2000 onwards). This includes **30 species** ranging from American signal crayfish and muntjac deer to rhododendron and Canada geese.

**Invasive Non-native Species in North Norfolk – Mike Sutton-Croft, Norfolk Non-native Species Initiative**


Invasive non-native species are considered to be one of the greatest threats to biodiversity worldwide, second only to habitat destruction. They can also have a significant economic impact, with one recent estimate putting the cost of these species to the UK at almost £2 billion per year.

North Norfolk is affected by a number of introduced animals and plants. One species which is causing particular concern is the American signal crayfish. This was introduced to the UK deliberately to farm for food in the 1970’s and quickly escaped in to the wild. It carries a fungus-like disease called ‘crayfish plague’ that does not affect the signal crayfish, but can be fatal for the native white-clawed crayfish. Signal crayfish also out-compete the native crayfish for shelter and food as they grow larger and more quickly. They are also more aggressive. These impacts have been a major factor in the 50% reduction in the number of white-clawed crayfish found in England and Wales over the last 40 years. Unless something is done quickly to reverse this trend, it is estimated that the white-clawed crayfish could be extinct in England and Wales within the next 20 to 50 years. The rivers found in North Norfolk hold the perfect habitat for native white-clawed crayfish, with one catchment already holding several thousand of this species. However, signal crayfish are also found in the area and attempts are now being made by the NNNSI and others to prevent the further spread of this species. Translocations are also planned to spread the white-clawed crayfish to new areas and catchments where they do not currently occur in North Norfolk (probably due to an acute pollution event in the past). This will establish safe havens, also called ‘ark’ sites, for the white-clawed crayfish where they should be able to survive in the long-term.

Another problem species in this area is the aquatic plant, New Zealand pygmyweed. This plant was introduced in the early 20<sup>th</sup> century for use in garden ponds, and has subsequently escaped out in to the wider countryside. Once it has established in a pond it can grow rapidly to dominate the waterbody at the expense of native species. The plant can be spread very easily (it takes only a tiny fragment of the plant for a new patch to grow) and is extremely difficult to eradicate once established. New Zealand pygmyweed is currently found in only a handful of ponds in North Norfolk, but due to the ease with which the plant can be accidentally transferred between waterbodies the situation is being carefully monitored. A new technology to eradicate the plant is being trialled at one site, which uses heat to kill the plants and so requires no herbicide use. Should this trial be successful it could be a method which is used elsewhere in North Norfolk and further afield.



American signal crayfish. Credit: NNNSI



New Zealand pygmyweed. Credit: Trevor Renals

**Historic Environment Records**

A wide range of records relating to Norfolk’s historic environment are held by the Historic Environment Service of Norfolk County Council, based at Gressenhall. These range from details of historic and scheduled buildings and monuments, to records of artefacts found by metal detector surveys, to information gleaned from crop marks identified from aerial photographs.

Our historic environment is protected through the planning system in much the same way that our important natural environment areas are, so it is vital that their whereabouts are known.

The Historic Environment Service of Norfolk County Council, based at Gressenhall, hold **9661 records** of historic sites, monuments, buildings and artefacts found in North Norfolk. These include:

- 4295 monuments;**
- 2159 buildings; and**
- 3143 findspots.**

Each record is classified according to the time period it dates from. The following table outlines the numbers of records in North Norfolk for each time period:

Time Period	Number of records
Prehistoric	276
Palaeolithic	43
Mesolithic	33
Neolithic	298
Bronze Age	366
Beaker	22
Iron Age	45
Roman	352
Post Roman	11
Saxon	82
Medieval	685
Post Medieval	1469
Modern	119
World War 1	35
World War 2	774
Cold War	9
Undated	252
Unknown	607

In addition to these, 4183 records are from a mixture of time periods and can therefore not be classified under one.

**Scheduled Monuments**

There are **83** scheduled monuments within North Norfolk district. These are historical monuments that are legally protected, and they range from the bronze age bowl barrows on and around Salthouse Heath to the Cold War blast walls and associated remains at the old RAF Coltishall.

**Warham Camp**

A large and well preserved Iron Age Hill Fort, this scheduled monument is arguably the best earthwork of this period in the region. Consisting of outer and inner ditches and banks, evidence has been found for a wooden palisade and platform at the rear, and a timber retaining wall on the inner face. Iron Age and Roman pottery fragments have also been recovered from the site.

Source: Norfolk Heritage Explorer website.



Credit: Lizzy Carroll

**Gallow Hill, Kelling**

Gallow Hill, adjacent to Salthouse Heath, contains ten burial mounds, or barrows, the largest of which measures 28m across and 2m high, surrounded by a bank and a ditch. None of the Gallow Hill burial mounds have been excavated so it is not known how many people are buried beneath each one, or indeed who they were. The size of the mounds suggests they would have been of high standing – perhaps even tribal leaders or members of a ruling family. Bracken encroachment had, up until recently, hidden the barrows from view. Bracken cutting and control started in 2008, when gorse and silver birch trees were also removed from the site. Sheep were introduced in 2011 to help maintain the site. As a result the barrows are now clearly visible and bluebells, sheep sorrel, wood sage and foxgloves have all also benefited. The work at Gallow Hill won a Campaign for the Protection of Rural England Norfolk award in 2010.



Largest barrow, before management, June 2008.  
© David Robertson, Norfolk County Council



Largest barrow, following management, March 2010.  
© David Robertson, Norfolk County Council



**Registered Parks and Gardens**

There are **18** registered parks and gardens in North Norfolk district.

Barningham Hall (II)	Mannington Hall (II)
Beeston Hall (II)	Melton Constable Hall (II*)
Blickling Hall (II*)	Raynham Park (II)
Felbrigg Hall (II*)	Sennowe Hall (II)
Gunton Park (II*)	Sheringham Hall (II*)
Hanworth Hall (II)	Stiffkey Old Hall (II)
Happisburgh Manor (II)	The Pleasaunce (II)
Holkham Hall (I)	Voewood (II*)
Honing Hall (II*)	Wolterton Hall (II*)

The grade of the garden is given in brackets after the name. Grade I is a garden of Exceptional historic interest, Grade II\* is of Great historic interest and Grade II is of Special historic interest.

**Holkham Hall**

The Holkham Hall Estate covers 1210ha and is considered one of the principle landscape parks in England. The parkland includes an obelisk, a lake and a stretch of coastline. The park was laid out by Thomas Coke, Lord Burlington and William Kent, and was greatly extended in the late 18<sup>th</sup> and early 19<sup>th</sup> century. Lancelot Brown, William Emes and Humphry Repton are all associated with the site.

Source: UK Parks & Gardens



© Norfolk County Council. Photographer: D.A. Edwards

**Felbrigg Hall**

Felbrigg Hall is a landscape park with 2 hectares of 17<sup>th</sup> and 18<sup>th</sup> Century gardens set in a wider landscape of park and woodland. The park and woodland were developed throughout the 18<sup>th</sup> Century from an earlier deer park, possibly at the hand of Humphry Repton. Much of it has now been returned to agricultural use.

Source: UK Parks & Gardens



© Norfolk County Council. Photographer: D.A. Edwards

### **The Norfolk National Mapping Programme (NMP) Project**

The National Mapping Programme covering the Coastal Zone of Norfolk was carried out between 2001-2006 and “sought to map, interpret and record all archaeological features visible on the consulted aerial photos, whether earthworks, cropmarks or structures.” (Albone *et al.* 2007). The work was undertaken by Norfolk Landscape Archaeology and mapped features from the Neolithic to World War II.

An aerial photo showing cropmarks described during the NMP project is shown below. Cropmarks can show the presence of archaeological features not visible above ground. They are formed when buried archaeological sites affect aspects of the soil quality and therefore the crop growth and speed of ripening. This is particularly obvious from the air, and is more easily observed in times of stress, such as a drought. This photo shows the cropmarks of a probable Bronze Age ring ditch and an Iron Age to Roman trackway, field system and possible farmstead.

The NMP Report on these cropmarks, in a field near Happisburgh, describes the ring ditch as “probably a Bronze Age round barrow... [having a] diameter of 28m and a possible entrance on its northeast side. The ring ditch or barrow has been used as the focus of a later, probably Iron Age to Roman, trackway and field system. This suggests that the barrow was still a prominent feature in the landscape in the Roman period and may still have had a ritual significance.”



© Norfolk County Council. Photographer: D.A. Edwards

### **Norfolk's Coastal Heritage Project – Richard Hoggett, Historic Environment Service**

Much of the county's coast is actively being affected by coastal change to a greater or lesser degree. In 2009 Defra invited local authorities to apply to an £11 million funded Coastal Change Pathfinder Programme, which aimed to explore ways of helping coastal communities plan and adapt to coastal change. North Norfolk District Council (NNDC) secured £3 million to trial its projects and thanks to a strong partnership between NNDC and Norfolk County Council's Historic Environment Service (HES), attempts to mitigate the effects of coastal change on the historic environment of coastal communities have been able to be explored as an integral part of the Pathfinder Programme in the form of the Norfolk's Coastal Heritage Project.

The Coastal Heritage Project was developed to inform, engage and empower local communities, allowing them to take an active part in preparing for the impact coastal change will have on their heritage. Initially the Project focussed on working with the community of Happisburgh, where coastal change is currently having a significant impact. Later in the programme the scope of the Project was broadened to include other coastal communities and groups, as well as to promote the historic environment to a much wider audience.

During the 15 months between January 2010 and March 2011 the Project delivered a number of significant community heritage events and initiatives which have greatly enhanced our understanding of the county's rich historic environment. The Project has:

- helped local communities prepare for the impact of coastal change on their heritage by providing local communities with the skills and experience to record their heritage before and as it is affected by coastal change;
- given a voice to the people of Happisburgh, enabling them to tell their own story for posterity in the form of enhanced Historic Environment Records and via *The Book of Happisburgh*;
- helped the community of Happisburgh interpret their heritage and key assets and make this available to visitors and others by a variety of means;
- informed future Shoreline Management Plans by enhancing a considerable number of coastal Historic Environment Records and ensuring that the significance of coastal heritage assets is properly Recorded in an appropriate manner; and
- developed a community heritage methodology that is easily applicable to communities affected by coastal change in the rest of England.



Happisburgh Heritage Group recording Happisburgh radar station © Norfolk County Council

**Access and Enjoyment**

Access to greenspace and nature has been shown in many studies to improve people’s health, wellbeing and quality of life. There are various ways for people to access and enjoy the North Norfolk environment – from visiting a nature reserve or walking along the Norfolk Coast Path, to getting involved in conservation volunteering with a local group, or going out and recording the plants and animals at a particular site.


**The Accessible Natural Greenspace Standard (ANGSt)**

A report written by The Landscape Partnership on behalf of Natural England looked into the provision of accessible natural greenspace across the county using the Accessible Natural Greenspace Standard (ANGSt). ANGSt was developed in the early 1990s and reviewed in 2008. It sets out recommendations about the proximity of accessible natural greenspace of varying sizes to people’s homes. For example ANGSt recommends that everyone should have one accessible natural greenspace of at least 2 hectares in size within 300m of their home. The report found that 4% of the total area of North Norfolk was accessible greenspace. This compared fairly well to the other Norfolk districts, with only Kings Lynn and West Norfolk (4.1%) and Breckland (9.7%) showing higher coverage, though was slightly below the county average of 4.8%. North Norfolk performed comparably to the county averages at the 2ha+ within 300m and 20ha+ within 2km levels, and well above average at the 100ha+ within 5km level. Overall however, only 1.3% of households met all of the ANGSt criteria compared with a Norfolk average of 3.2%.

**Norfolk Coast Path**

The Norfolk Coast Path National Trail, which runs between Hunstanton and Cromer, counted 87,000 walkers last year and has just been voted Best Coastal Path in Britain. Created by using a network of existing footpaths and newly created ones, the trail links the coastal end of the Peddars Way to Cromer. The Peddars Way and Norfolk Coast Path is celebrating its 25<sup>th</sup> anniversary this year. Offering fantastic scenery and relatively easy terrain, the Trail is a perfect opportunity for people to get out and enjoy the environment.

Source: [www.nationaltrail.co.uk/PeddarsWay/](http://www.nationaltrail.co.uk/PeddarsWay/)



Credit: Megan Coombs



## Nature Reserves

Public nature reserves are an ideal place for people to get out and experience nature. Many have well maintained trails, interpretation boards, hides from which to watch wildlife and some even have facilities such as visitor centres and cafes.

There are many nature reserves in North Norfolk which welcome visitors, run by a variety of organisations:

There are nine Norfolk Wildlife Trust reserves in North Norfolk. These include their oldest and best known reserve, **NWT Cley Marshes**, which is celebrating its 85<sup>th</sup> anniversary this year. Its shingle beach, saline lagoons, grazing marsh and reedbed play host to large numbers of wintering and migrating wildfowl and waders, plus bittern, marsh harrier and bearded tit. **NWT Thursford Wood**, north east of Fakenham, contains some of the oldest oak trees in the county, while the fen habitat around **NWT Barton Broad** contains rare plants and contributes to the UK's largest fenland expanse.

The RSPB has two reserves in the district. **Sutton Fen** is exceptionally important for its rare plants and invertebrate diversity as well as playing host to breeding bitterns, marsh harriers and Cetti's warbler.

One of two Woodland Trust Reserves, **Old Wood** has surfaced paths through Corsican Pine, Douglas Fir, broadleaf woodland and heathland, and offers excellent views to Sheringham and the sea.

One of the National Trust's best known reserves, **Blakeney National Nature Reserve** is "one of the largest expanses of unspoilt coastline in Europe". Uninterrupted coastal views, large sandy beaches and vast areas of pristine rare habitat make this a truly spectacular site. Blakeney Point, within the reserve, is a 3 ½ mile long spit of sand and shingle which is home to colonies of breeding terns and migrant birds passing through in summer and an important breeding and haul-out site for grey and common seals.



Sources:

<http://www.norfolkwildlifetrust.org.uk/Wildlife-in-Norfolk/Reserves.aspx>

<http://www.rspb.org.uk/reserves/guide/s/>

<http://www.woodlandtrust.org.uk/en/visit-woods/Pages/wood-details.aspx?wood=4750&site=Old-Wood>

<http://www.nationaltrust.org.uk/main/w-blakeney>

For those keener to get stuck in, there are many local conservation volunteering groups to get involved in. These groups do a fantastic amount of work, and without them, conservation in the county would undoubtedly struggle. These groups are often involved in practical work, such as scrub clearance, coppicing and reserve management, and some go further, such as the River Glaven Conservation Group detailed below.

**The River Glaven Conservation Group**

The River Glaven Conservation Group (RGCG) exists to protect and enhance the River Glaven, its tributaries and its flood plain, working with and alongside landowners, farmers, conservation organisations and relevant public bodies.

The RGCG are, and have been, involved in many varied projects over the years. These have included clearing invasive Himalayan balsam from the river banks, helping to introduce Highland Cattle to 3 sites for conservation grazing purposes, helping to facilitate the Catchment Sensitive Farming Initiative which helps farmers and other organisations to reduce soil erosion and run off into the river, and researching otter diet in the Glaven catchment.

River restoration projects have also been something that the group has been heavily involved with, and in 2007 they won a prestigious award at the annual Wild Trout Trust and Orvis Conservation Awards for the River Glaven “Cinderella” Chalk Rivers Restoration Project. The restoration took place on a stretch of the Glaven upstream of Letheringsett Ford with funding from the national Cinderella Chalk Rivers Project. The project was run as a partnership and had a number of objectives:

- To restore and enhance 1km of in-river habitat and increase biodiversity for brown trout, brook lamprey, bullhead and white-clawed crayfish.
- To enhance the ecological and geomorphological functioning of the river and re-connect the river and floodplain by removing a section of raised bank.
- To develop an expertise base for the group in relation to further restoration projects and to establish a demonstration site to show the techniques to other interested parties.

Heavy rain in June 2007 demonstrated the success of removing the floodbank, as the flood plain meadow retained a large volume of flood water for 24 hours. The re-profiled bank area is now naturally regenerating with a range of plant species, while white water-crowfoot and starwort are flourishing in the river, now it is no longer shaded by the bank. The site regularly hosts school students and enjoys close links with Holt Hall Field Studies Centre.

In August 2010 the practical work for another river restoration project commenced, this time at Hunworth, in collaboration with the Environment Agency, Professor Richard Hey, the Wild Trout Trust and CEFAS. This aimed to restore a more natural and diverse channel by introducing a series of deep pools and shallow riffles and narrowing the channel. The early results of this work are promising, with plant recolonisation already beginning.



Credit: Martin Pugh

Recording the plants and animals seen in an area is another way to get out and experience nature as well as making a positive contribution to conservation.

### **Recording at Sheringham and Beeston Regis Commons SSSI/SAC – Francis Farrow**

Biodiversity is defined as the '*variety of plant and animal life in a particular place, a high level of which is usually considered to be important and desirable*'. Certainly I would consider the wildlife of Sheringham and Beeston Regis Commons important and desirable, but then I am biased, having known the area all my life and recorded its inhabitants for the last 50 years.

The Commons lie to the east of Sheringham and consist of almost 25 hectares of mixed habitat – grassland, heath, wetland and secondary woodland. These varied habitats in turn support a variety of plants and animals, which in some cases are among the last stronghold of certain species within the County. As with all natural environments nothing is static and habitats change over time, which in turn creates changes in their biodiversity.

With the advantage of long-term recording these changes in biodiversity become apparent. Grazing by ponies and goats was a major feature of the Commons up to the 1970s. Since this stopped most ground nesting birds, such as Lapwing, Common Snipe, Grey Partridge and Skylark have been lost. The urbanisation of surrounding fields, a general lowering of the water table and a nutrient-rich groundwater are also factors that combine to produce unsuitable conditions. More recent losses such as Turtle Dove, Yellowhammer and Linnet, all within the last 5 years, are most likely linked to the national decline of these species.

Although breeding birds have declined, many butterflies have prospered. The warm summers during the late 1980s through the early to mid-1990s, allowed new species to colonise the area. Some 28 species of butterfly have been recorded with 24 species seen annually and possibly breeding on the site. There have been losses, such as the Small Heath and Dingy Skipper, but the gains, which started with Brown Argus and Grayling arriving in 1989, continued throughout that decade adding Speckled Wood (1990), Purple Hairstreak (1992) and Essex Skipper (1997). Only the Grayling has been lost (2005) from the new arrivals. The latest additions include White Admiral recorded since 2006 and as recently as June 2011 a migrant Silver-washed Fritillary was observed.

Other visible insects are the dragonflies and since 1984 the local pond has been permanent with a constant feed from one of the becks, resulting in 19 species being recorded of which 14 have been known to breed. In addition the Keeled Skimmer, which breeds in small boggy pools, has been present since 1989, although not seen every year.

The Commons are well-known for their flora and have attracted visitors for many years. It is the wetlands where the essence of biodiversity is seen. Great and Round-leaved Sundews are found in the acid areas, the former now restricted to around five Norfolk sites, where it is vulnerable to lower and nutrient-enriched water tables. Over the years some 12 species of orchid plus five varieties/hybrids have been recorded although since 2007 there has been no sighting of Bee, Pyramidal or Early Purple Orchids. The Lesser Butterfly Orchid still occurs here, one of only three sites in the county, however, just one spike was seen in 2011.

By recording annually, changes in the flora and fauna of the Commons at any particular time can clearly be seen and although species may be lost, sometimes nature surprises us. In 2007 an old silted up pond was reinstated by Sheringham Town Council on Top Common, an area to the north of the SSSI and in 2008 Mudwort was found. This plant had not been recorded in Norfolk since 1914 and not in East Norfolk since 1906! Such an event increases the value of recording.



Great Sundew Credit: Francis Farrow

## **Conclusion**

There are many aspects of the North Norfolk environment to be positive about, such as:

- The stunning landscape of the North Norfolk Coast AONB, carefully managed by the Norfolk Coast Partnership to ensure it can be enjoyed by generations to come.
- The wealth of archaeological and historic environment sites throughout the district, from the prehistoric to the Cold War.
- The rare arable plants thriving in pockets of North Norfolk farmland.
- The large number of designated sites and nature reserves, home to many rare and protected species.
- The conservation groups, organisations and individuals working hard to record, protect and enhance the natural environment of North Norfolk.

However there are also some areas that could be improved upon.

- 93% of the district's SSSIs were found to be in 'favourable' or 'unfavourable recovering' condition in May 2011. This falls just short of the government's target of 95% in favourable or recovering condition by 2010.
- The 2009/10 NI197 data showed that the percentage of Local Wildlife Sites in positive conservation management was static from the year before and was now below both the Norfolk average and the county target.
- Non-native species are a continuing problem in North Norfolk, as in the rest of the county, although work is underway via the Norfolk Non-native Species Initiative to tackle the problem.
- The unexplained deaths of seals washed up on the coast of North Norfolk in 2009-10 are still under investigation
- Finally, despite the stunning landscape of North Norfolk, only 4% of the total area is accessible greenspace, and only 1.3% of North Norfolk households meet all of the criteria recommended in the ANGSt Report, compared with a Norfolk average of 3.2%.

North Norfolk faces challenges over the next few years that will have an effect on its environment. Having a large amount of coastline, coastal change – such as sea level rise and coastal erosion – is a massive issue, and one that will affect many habitats, landscapes and people. Non-native species are increasingly becoming a problem, as people become more mobile, facilitating the spread of invasive species, and as more plant species (in particular) are imported. Climate change also has the potential of making areas that were previously unsuitable more favourable, allowing species to thrive and spread. The current economic climate means that budgets – including those for environmental work – are being squeezed and there is less funding available for environmental management.

However there are also opportunities. More people are aware of the environment and its importance to human health and wellbeing than ever before, so there is real opportunity to engage further with the people of North Norfolk and get the 'Big Society' involved in the natural environment, alongside existing organisations. A



strong foundation has been built, of which the district can be rightfully proud. However it is crucial that this foundation is built upon, to avoid the good work done so far being undone.

## **References and useful information**

### **Designated Sites**

- Designated site citations can be found at:  
<http://jncc.defra.gov.uk/page-4>  
<http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm>
- The Wash and North Norfolk Coast European Marine Site website (2010).  
[www.washandnorthnorfolkcoastems.co.uk](http://www.washandnorthnorfolkcoastems.co.uk)
- UNESCO UK Man and the Biosphere Committee. [www.ukmab.net/north-norfolk-coast-biosphere-reserve/](http://www.ukmab.net/north-norfolk-coast-biosphere-reserve/)

### **Landscape**

- Norfolk Coast Partnership [www.norfolkcoastaonb.org.uk](http://www.norfolkcoastaonb.org.uk)
- Norfolk Coast Partnership. *Management Plan 2009-14. The Five Year Strategy*, Accessed from [www.norfolkcoastaonb.org.uk](http://www.norfolkcoastaonb.org.uk)
- Norfolk Coast Partnership. *Norfolk Coast AONB Management Plan 2009-2014 V2. Summary Action Plan*. Accessed from [www.norfolkcoastaonb.org.uk](http://www.norfolkcoastaonb.org.uk)

### **Habitats**

- Byfield, AJ & Wilson, PJ (2005). *Important Arable Plant Areas: identifying priority sites for arable plant conservation in the United Kingdom*. Plantlife International, Salisbury, UK.
- Carroll, L (2010). *Ponds in Norfolk: Establishing the Feasibility of Determining Important Pond Areas in the County from Norfolk Biodiversity Information Service (NBIS) Data*. Norfolk Biodiversity Information Service.
- Netgain: The North Sea Marine Conservation Zones Project (2011).  
<http://www.netgainmcz.org>
- Walker, H, Cunningham, S, Ellis, B & Neal, S (2011). *Important Arable Plant Areas in Norfolk. A preliminary study*.

### **Historic Environment**

- Albone J, Massey S & Tremlett S (2007). *The Archaeology of Norfolk's Coastal Zone. Results of the National Mapping Programme*. Norfolk Landscape Archaeology/ English Heritage.
- Norfolk Heritage Explorer  
<http://www.heritage.norfolk.gov.uk/SingleResult.aspx?uid=MNF1828> NCC.
- Parks & Gardens UK (2007). [www.parksandgardens.ac.uk](http://www.parksandgardens.ac.uk) Some of the information from this website had been sourced from the English Heritage Register of Parks and Gardens of Special Historic Interest.

## **Access & Enjoyment**

- Beeston Common Management Group (2011). Website of Sheringham & Beeston Regis Commons SSSI/SAC. [www.beestoncommon.org.uk](http://www.beestoncommon.org.uk)
- National Trails Website. [www.nationaltrail.co.uk/PeddarsWay/](http://www.nationaltrail.co.uk/PeddarsWay/).
- Norfolk Wildlife Trust Nature Reserves  
<http://www.norfolkwildlifetrust.org.uk/Wildlife-in-Norfolk/Reserves.aspx>
- River Glaven Conservation Group <http://www.riverglaven.org.uk/home.html>
- RSPB Reserves <http://www.rspb.org.uk/reserves/guide/s/>
- National Trust Blakeney NNR <http://www.nationaltrust.org.uk/main/w-blakeney>
- The Landscape Partnership (2010). *Analysis of Accessible Natural Greenspace Provision for Norfolk*. Natural England.
- Woodland Trust Reserves – Old Wood  
<http://www.woodlandtrust.org.uk/en/visit-woods/Pages/wood-details.aspx?wood=4750&site=Old-Wood>

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