

# *UK biodiversity and geodiversity action plans*



## biodiversity and geodiversity

**Biodiversity** – the richness and variety of life – encompasses all species that live on the Earth, from commonplace and abundant trees, flowering plants and animals through to rare and endangered species. It is directly associated with the places where these plants and animals live – their habitats.

Habitats can change with the passage of time through natural succession. They can also be created and managed as part of the mineral extraction process to form a valuable biodiversity resource.

**Geodiversity** encompasses the variety of rocks, fossils, minerals, landforms and soils that occur on our planet, along with the natural processes that shape the landscape. Quarrying of aggregates and clay offers a unique opportunity to study geodiversity, allowing us to understand the Earth's history and how life has evolved and to help us to manage our environment.

## government policy

The Government's biodiversity policy originates from the Earth Summit in Rio de Janeiro in 1992. Two years later, the UK biodiversity action plan (BAP) was published and set as an overall goal:

“To conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms.”

The UK BAP aims to protect habitats and species in decline or under threat by setting up measurable, achievable, realistic, time-bounded national targets. These are in the form of action plans for a series of priority habitats and species. The government's nature conservation agencies (English Nature, The Countryside Council for Wales, Scottish Natural Heritage and Joint Nature Conservation Committee) are working in partnership with other organisations to establish a range of programmes to deliver the objectives over a 20-year period.

To support these aims, local biodiversity action plans (LBAPs) have been prepared by a range of organisations in both the public and private sector.



Spotted redshank/Paul Sterry/NPL



Oyster/Paul Sterry/NPL



The plans outline actions to be taken to conserve and enhance species and habitats identified in the UK BAP, and those that may have a particular local significance. They rely on local partnerships to prioritise resources, maintain programmes and provide valuable ecological information.

Although geology and geomorphology have been part of the government's conservation brief since 1949, there is no national geodiversity action plan with a framework which provides support and guidance to action plans at a local level.

Local, site-based geological conservation has been driven by a desire to conserve geological sites and designations through a network of local geodiversity action plans (LGAPs). LGAPs are informed by national guidelines on geological conservation, bringing together nationally designated sites (such as SSSIs) with regionally and locally important ones (such as RIGS) into a common framework.

LGAPs co-ordinate geoconservation in defined geographic areas using administrative (usually county) or geological boundaries.

## Hanson's approach

We recognise that biodiversity and geodiversity are essential components of sustainable development. Company action plans will allow us to address these issues across all our activities, and maximise benefits for the environment.

Careful control of our operations by an experienced management team, combined with the scale and variety of the business, allows us to manage our production sites, both on land and at sea, to maximise biodiversity and geodiversity gains. Many of our sites have already made positive contributions.

In addition, we have developed Memorandums of Understanding with both English Nature and the Countryside Council for Wales. These recognise the importance of bio and geodiversity and include our commitment to developing company action plans.

We also support government and industry initiatives to promote biodiversity and geodiversity.

## our action plans

Our action plans will be integral parts of our resource planning, site development and restoration. They will enable us to build on the good work we have already done, and to set new priorities. The BAP will allow us to target ecological gain towards LBAPs. The GAP will deliver geological conservation and opportunities for learning by the protection, enhancement and creation of resources, and the provision of information.

The plans will be delivered through our existing environmental management systems and will operate at corporate and site levels. Site action plans will set measurable targets and will relate closely to LBAPs and LGAPs.

As part of the marine and land-based mineral planning process, we carry out environmental impact assessments (EIAs) to identify impacts and mitigation. EIAs include a detailed survey of habitat and species and geological resources directly and indirectly affected by the process. Our BAP and GAP will ensure that these surveys identify local action plan targets and priorities, allowing the working scheme, where

possible, to introduce biodiversity and geodiversity gain. A rolling programme will be introduced to develop site BAPs and GAPs with priority given to those sites where maximum benefit can be achieved. They will be implemented throughout the various stages of mineral extraction including site preparation, extraction and restoration. Site BAPs will focus on action to conserve or develop habitats and species identified as targets in LBAPs. Site GAPs will focus on geological features identified in LGAPs, or those with potential conservation value.

## working in partnerships

We will continue to work in partnership with statutory and non-statutory organisations at both national and local level to develop and implement best practice and improve understanding. Biodiversity and geodiversity targets will be taken forward through existing and new agreements with nature conservation and geological groups.

We will also ensure our own site managers are kept informed about local action plans to enable them to implement site BAPs and GAPs. A target in our BAP is to make guidance available for site staff on species and habitats which are identified as important to the minerals sector, both on land and offshore, where sensitive site management, restoration and aftercare can deliver significant gains.

Hanson already hosts many educational visits to operational sites and provides information for study elsewhere. The development of site action plans will provide further resources that can be used for education and research.

## review

In common with other aspects of environmental management, the objectives and targets of the Hanson BAP and GAP will be reviewed annually and reported on, to ensure our commitment to continuous improvement is met. We will arrange regular meetings with relevant partners to discuss progress with the plans at national and local level.

The feedback from this process will allow us to develop the plans and achieve ongoing improvements in the delivery of biodiversity and geodiversity gains.

## Objectives and method

## Target date

1

**Improve data and information flows**

Ensure biodiversity and geodiversity information (eg LBAPs/LGAPs) and data are made available to appropriate management within the company

**dec 05**

2

**Undertake an audit of geo and biodiversity**

Carry out site resource audits, including review of existing data, and identify sites with the most potential for bio and geodiversity action plans

**june 06**

3

**Consider biodiversity and geodiversity in new proposals**

Ensure all new development and restoration proposals consider any potential for biodiversity and geodiversity gain, particularly for UK BAP and LBAP priority species and habitats, SSSIs, RIGS and other geological sites of conservation value

**june 05**

4

**Enhance the management of biodiversity and geodiversity at active sites**

Develop guidance for producing site BAPs and GAPs and make it accessible to relevant staff

**dec 05**

Introduce a rolling programme for the development and implementation of site BAPs and GAPs with an initial target of 25 operations

**dec 06**

5

**Education/research**

Make resources from site BAPs and GAPs and other interpretative material available to school and further education visits. Encourage educational use of sites where appropriate

**dec 06**

Reed bunting/Philip Newman/NPL



Great crested newt



6

**Review progress**

Establish procedures to monitor performance against site BAPs and GAPs as part of the ongoing environmental audit

**dec 05**

Monitor performance against the Hanson action plans annually and review plans accordingly

**dec 06**

Hold regular review meetings with partner organisations at site and corporate level and report on progress

**dec 07**

7

**Improve employee awareness**

Develop staff awareness in biodiversity and geodiversity to facilitate their integration into ongoing site management

**ongoing**

Make guidance available to site managers for species and habitats associated with the minerals sector

**ongoing**

8

**Management of SSSIs**

In liaison with English Nature and the Countryside Council for Wales, work towards achieving 'favourable condition' in the status of all Hanson controlled Sites of Special Scientific Interest (SSSIs)

**as defined in  
memoranda of  
understanding**

9

**Contribute to UK BAP targets on reedbed and fen**

Through the habitat champion agreement with English Nature, work towards increasing areas of reedbed and fen created on Hanson sites

**ongoing**

10

**Partnership links**

Build upon and develop new partnerships to progress the development of site BAPs and GAPs

**ongoing**

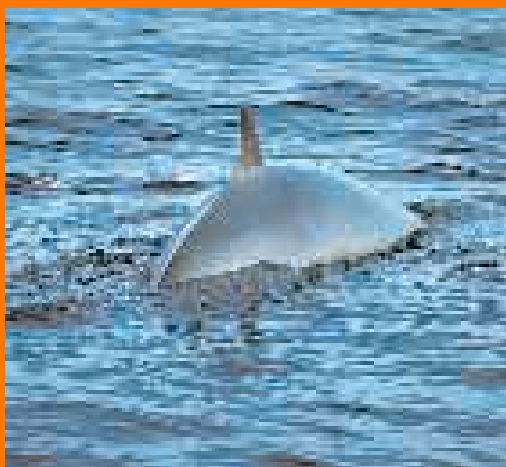
Common dolphin/Paul Sterry/NPL



Fan shell/Sue Scott (published on the *MarLIN* website)



Minke whale/Paul Sterry/NPL



# case studies



## 1 Wetland creation Needingworth, Cambridgeshire

Hanson is creating one of the largest new wetland habitats in Europe at Needingworth quarry in Cambridgeshire. The site will be managed by the Royal Society for the Protection of Birds.

The creation of new wetlands has been identified as a national priority in the UK biodiversity action plan. They are needed to safeguard threatened birds such as the bittern, reduced to 13 booming males in the UK in 1998, and to provide new habitat to off-set projected future losses of internationally important coastal wetlands through coastal erosion accelerated by sea level rise.

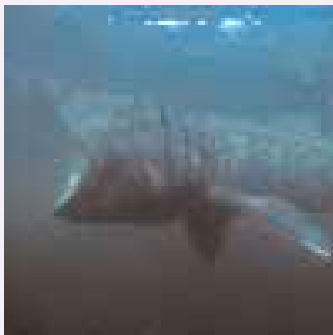
The Needingworth site provides an exceptional opportunity to create a 600 hectare wetland, representing 50 per cent of the UK's target for reedbed, and to demonstrate best practice in implementing a planning consent for extraction of sand and gravel and restoration to nature conservation. The scheme was devised in partnership with Cambridgeshire County Council, English Nature, RSPB, The Wildlife Trusts, The Countryside Agency and The Environment Agency. The RSPB, with its extensive experience in nature reserve operation and management, has made a considerable contribution to the project.

The Fens is a unique and special area. It owes its existence to its origins as the nation's largest lowland wetland with impassable swamps, rich grazing and abundant fish and other wildlife. The links to this wetland past are strong and remain in the rich dark soils, the pattern of settlement, and in the wildness of the last remaining wetland fragments.

New wetlands can make a major contribution towards achieving UK biodiversity targets. The Fens supports, or has the potential to support, a number of priority species including otter, water vole, bittern, fen violet and swallowtail butterfly. Restoring fens from low-level quarry workings may provide the only real opportunity for long-term wetland habitat creation.

## 2 de la Beche unconformity Frome, Somerset

Many active quarries have associated land holdings that have been quarried in the past and now provide biodiversity and geodiversity resources. One of these is the de la Beche unconformity in Vallis Vale – a geological SSSI. Here the Carboniferous limestone dips steeply at an angle of 30 degrees north and is overlain by horizontally bedded Jurassic Inferior Oolite. The limestone contains marine *Lithostrotian* coral and crinoids. The Jurassic limestone has abundant fossil evidence including bivalves, *Trigonia costata* and *Goniomyo lirata*. Along the horizontal surface marking the top of the Carboniferous limestone are many Jurassic trace fossils including pock marks and borings from burrowing worms and crustaceans and abundant calcified oyster shells. This indicates a shallow warm oxygenated marine environment in the Middle Jurassic period. Henry de la Beche was the first director of the Geological Survey and recorded this unconformity in his first memoir in 1846.



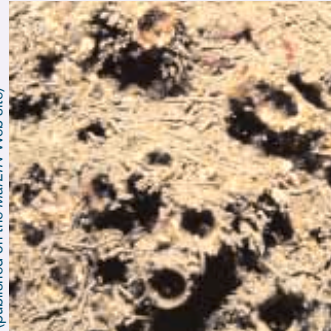
Basking shark © Shark Trust



Common skate/Davey Benson



Ross worm tubes © www.jrcc.gov.uk  
(published on the MarLIN Web site)



Lesser sand eel/SC Bisslerot/NPL



## 3 The ross worm and sand eel British coastal waters

Dredging the sea bed for aggregates brings with it a responsibility to protect the marine environment and pay due regard to the impact on biodiversity. This places great emphasis on the maintenance of species diversity, and in particular rare or key community species and habitats. Such a species is *Sabellaria* (the ross worm) which can construct large reefs out of sand grains, modifying the seabed and providing many niches for a wide diversity of associated species.

Hanson works closely with English Nature, the Joint Nature Conservation Committee and the Countryside Council for Wales to protect such key habitats and communities, and ensure the seabed is left in a condition following dredging which will encourage the re-establishment of a diverse community. However, while biodiversity is a key consideration in the assessment of the significance of such species, the productivity of these communities, and their importance to the wider ecosystem must also be considered.

A community can be very low in terms of diversity, and yet support a very significant biomass of animals, which may be of key importance as prey items for commercially important fish, or feeding seabirds. A particularly important example of such a species is the sand eel, which often occurs in comparatively impoverished sandy sediments, and yet forms the primary prey item for a number of fish species and for seabirds such as puffins, guillemots, shags, gannets, and cormorants.

## 4 River enhancement Middleton Hall, Staffordshire

At Middleton Hall quarry, near Tamworth in Staffordshire, Hanson's restoration work is being promoted within the Central Rivers Project – an initiative aimed at boosting river wildlife in the Tame Valley.

The work being done will help to restore traditional habitats and landscape which have been lost over the years, mainly due to changes in agriculture.

Restoration work in the river floodplain over the last 10 years has reintroduced reedbeds, field ponds, meadows, marshland and woodland, which had all disappeared over the years. It has produced a haven for wildlife including otters and a large variety of birds, insects and fish. In one area of the site, the River Tame has been modified so it has reverted to a braided river. Here rapids and shallows as well as deep pools have been reintroduced to improve conditions for wildlife.

It is the first time that quarrying and restoration work has been permitted in the river margins and it has allowed naturally-occurring features to be reintroduced.

## 5 Great crested newt breeding Freehay quarry, Staffordshire

A great crested newt breeding pond has been established at Hanson's Freehay quarry, near Cheadle in Cheshire, thanks to the ingenious use of equipment normally associated with plumbers.

The pond is in former quarry workings and to keep the newts away from the working areas, experts from our in-house natural resources department in consultation with English Nature, have encircled the pond with 165 domestic header tanks, which are about half a metre deep and provide an effective barrier. If a newt should pass the tanks, a 700 metre long amphibian-proof fence has also been constructed.

Sky/jark/Philipp Newnman/NPL



Geoff du Feu/NPL



## 6 Otter habitat creation Yorkshire

Hanson is backing a Yorkshire Wildlife Trust project to help protect and increase the numbers of otters on Yorkshire rivers. We have created a home for otters on the river Ure in North Yorkshire and another on the Wharfe near Otley.

Quarry workers at a site near Ripon built the first holt with concrete building blocks alongside newly created reedbeds, all aimed at providing ideal habitat for one of Britain's shyest mammals. The holt is about 100 metres from the river and is made up of two one-metre square chambers with two plastic drainage pipes for access. The structure is covered with soil. The otter population in Yorkshire is still vulnerable and fragmented, but the habitat on the Ure and Wharfe is ideal, with the reedbeds and man-made holts providing a secure site.



## 7 Protecting dormice Somerset

Two Hanson-owned sites in Somerset have been targeted for conservation work to help protect endangered dormice. At Asham Wood near Frome, coppicing and 50 dormouse boxes have been introduced to encourage nesting. The boxes are monitored and their numbers are recorded. Across the Mendips in Cheddar, boxes have been placed in Hanson woodland adjoining Batts Combe quarry and monitored with the help of pupils from Wells Cathedral School. The project has been a big success and dormice have begun breeding.

## 8 Quaternary geological sequence Pen-y-Bryn, Caernarfon, Gwynedd

During the last ice age, the site that is now Hanson's Caernarfon brick works was overrun by a series of glaciers and ice-sheets from the Welsh mountains to the south, and the Irish Sea to the north. The sequence at Pen-y-Bryn tells the story of how the various ice-sheets competed for supremacy, providing important evidence on the Quaternary history of the region. It is the only site in the area to contain organic deposits of a pre-glacial age and is popular with geologists from throughout the UK. In addition, local management has facilitated many study trips for schools and universities.

## 9 King's Dyke nature reserve Peterborough, Cambridgeshire

Just a stone's throw from the huge King's Dyke brick works in Cambridgeshire where 3.5 million bricks are made every week, a derelict former clay pit has undergone a major transformation. A corner of the site known as the old Central No 1 pit was dug for clay between the 1920s and 1950s but later became an abandoned wasteland.

In 1995 a decision was taken to develop the 16 hectare site as a nature reserve. With a variety of birds and plants already present, it was felt the area had great potential. Islands were created in the lake which had formed in the bottom of the pit, reedbeds were planted, wild flowers sown, a pond dipping area created and trees planted.

The King's Dyke nature reserve opened in 1999 and is now a valuable wildlife habitat and an important educational and recreational facility. The latest bird count recorded 100 species.

There are 18 different species of dragonfly and 212 types of butterfly. Water voles and grass snakes are common sights and red deer have visited during the winter. Permits are issued for people who want to visit, and schools make regular trips.

Another part of the King's Dyke site has been designated a Regionally Important Geological Site (RIGS), recognising the part that the Oxford Clay – the raw material used to make bricks – has played in the heritage and wealth of Peterborough. Outcrops have revealed some of the world's best specimens of marine reptiles from the Jurassic Period.

Lying on top of the Oxford Clay are Quaternary sands and gravels that are also of important geological significance.

Recent restoration has left open exposures of these materials for further study and the bare faces are now proving to be ideal habitats for various reptiles and invertebrates – combined biodiversity and geodiversity in action.

Hanson is a leading international building materials company operating in 14 countries with almost 28,000 employees. We are the largest producer of aggregates (crushed rock, sand and gravel) in the world and we also manufacture asphalt, ready-mixed concrete, precast concrete products and clay bricks.

Our UK business is split into two divisions – Hanson Aggregates and Hanson Building Products. Between them they employ over 7,000 people.

Hanson Aggregates produces construction aggregates from both the land and the sea bed. We manufacture asphalt, Premix concrete and mortar and recycled aggregates from construction and demolition waste. We also offer an infrastructure and road surfacing contracting service.

Hanson Building Products makes clay facing bricks and a range of precast concrete products including, blocks, flooring and bridge decking. We also supply bagged aggregates and decorative hard landscaping products.

Caring for the environment is an integral part of our business strategy. We endeavour to make a positive contribution to the environment through our products and land and marine management programmes. We are also committed to the principle of continual improvement in environmental performance.



[www.hanson.biz](http://www.hanson.biz)

Lesser horseshoe bat/SC Bissart/NPL



Skylark/Roger Tidman/NPL

