



UK Sand Dune and Shingle Network

Sixth Newsletter, July 2009

NATURAL
ENGLAND

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Introduction

Welcome to the sixth newsletter of the UK Sand Dune and Shingle Network. We hope it gives you an update on some of our current work as well as national and international news.

We continue to be supported by Natural England through a Memorandum of Agreement relating to its work on sand dune and shingle habitats. As part of this agreement we are pleased to have been invited to join the coastal Biodiversity Integration Group of the England Biodiversity Strategy.

Biodiversity Integration Groups are a new initiative charged with driving the delivery of priority habitat targets and those of associated species. They form a bridge between the policy aspects of biodiversity strategy and the delivery of biodiversity action at the regional and local level. The network can help by finding out what is actually happening on the ground and, with regional coordinators, helping to identify the priorities for habitat maintenance, restoration and expansion in line with national targets. We will be reviewing aspects of the Shingle Habitat Action Plan for England later in the year.

We will be holding a national workshop on the conservation and management of Sea Buckthorn scrub in September and we hope that this will lead into a wider discussion on dune scrub next year.

Our core activity is also supported through the Higher Education Innovative Fund (HEIF) administered through the Higher Education Funding Council for England. The thrust of this funding is to encourage university links with the outside businesses and interests. We are very pleased to report that we have been awarded additional funding to support the project through into 2011 and to employ a part-time information assistant to help with, amongst other things, the development of the website and publications.

We continue to develop the national and international dune and shingle network. We look forward to meeting Mark Dean, chairperson of the Dune Restoration Trust of New Zealand, in September and in this newsletter we also feature news items from Finland, Israel and Germany.

The membership continues to grow. We now have about 140 full members who have completed registration forms and whose details are entered on our database. The advantage of membership is that you can specify your interests. Members are also the first to know about workshops and study tours. The newsletter is circulated to over 300 people across the globe. Please copy the newsletter to your colleagues and encourage them to join.

Thanks to all those who have contributed to this newsletter.

Paul Rooney, Liverpool Hope University

Network research on invasive species

The impact of invasive, non-native species ranks alongside habitat destruction as one of the major global threats to biodiversity conservation. Sadly, sand dunes and shingle habitats have not escaped this impact, and many nature conservation managers spend much time and money in eradication of such problematic species.



Japanese Rose *Rosa Rugosa* © John Houston



The next issue of the newsletter will focus on this issue. I have recently sent a questionnaire to network members, asking them to send me details of non-native on their sites. This has produced some interesting (and alarming!) responses and I will report some of these results in the newsletter. I would, however, very much appreciate more responses in order to get a good geographical spread and comprehensive picture (sites for which I have a responses are located on the map). The questionnaire is available on our web site at (www.hope.ac.uk/coast) or by e-mailing me at edmonds@hope.ac.uk. Thanks very much to all those who have already responded, and in anticipation of further responses.

In addition, if anyone can contribute a short note on any aspect of non-native species on dunes or shingle, including experience of managing any problem species, it would be most welcome.

Sally Edmondson, Liverpool Hope University

Coastal Change and Adaptive Management THE NATIONAL TRUST

Phil Dyke, Coast and Marine Adviser, The National Trust

The National Trust cares for 707 miles (1130 km) of the coastline of England, Wales and Northern Ireland, a tenth of the total length. The scale of this ownership means that the National Trust faces some serious challenges associated with sea-level rise, in particular an increase in coastal erosion and flooding.

Understanding and planning for coastal change within the Trust

Future forecasts are that climate change will lead to continued sea-level rise and increased storminess which will, in turn accelerate the scale and pace of coastal change.

To help plan for this uncertain future, the National Trust commissioned research looking at how the coastline under its management is likely to change over the next 100 years. Coastal Risk Assessment 1 (CRA1) identified the properties within the coastal flood and erosion risk zone and over the past two years the National Trust regions and countries have worked to develop CRA2, a detailed analysis of these impacts at a finer resolution.

The results of CRA2 identify 60-70 'hotspot' locations where a complex mix of issues combine to propose that a detailed Coastal Adaptation Strategy (CAS) will be needed to support decision making.

Hard choices and coastal squeeze – the advocacy message

The CRA research led to *Shifting Shores* in 2005, a policy document that set out the organisation's position on working with a changing coast in England. In 2007 a version looking at coastal change in Wales was published and in January 2008 a similar document was launched covering a number of key sites in Northern Ireland.

The big message in *Shifting Shores* is that it is unrealistic, in a time of rising sea levels, to think that we can continue to build our way out of trouble on the coast as we have for the past 150 years.

Through *Shifting Shores* the National Trust is promoting a discussion at a national, regional and local level about the importance of working with natural coastal processes.

The National Trust is arguing for the largely undeveloped coast (roughly 80% of our coast) to be able to flex and evolve in a natural manner. Where a sand dune is free to move inland it will respond to sea level rise whilst maintaining a natural and dynamic form of sea defence. If constrained by a sea wall on one side and a rising sea level on the other the beach material transported offshore and often lost.

Making time and space for change

A key challenge for the National Trust and wider society is the need to be able to think for the long-term. The Shoreline Management Plan process looks at twenty, fifty, and one

hundred year time frames and needs to become the norm, to replace the current practice of thinking in five-year planning and political cycles.

CRA2 has enabled staff at the National Trust's coastal properties, such as South Milton Sands and Formby Point in Merseyside to think beyond the short-term. The *Shifting Shores* documents show how the National Trust is putting this thinking into action.

Links for further information

National Trust coastal policy

http://www.nationaltrust.org.uk/main/w-chl/w-countryside_environment/w-coastline/w-coastline-shifting_shores.htm

Shifting Shores http://www.nationaltrust.org.uk/main/w-shifting_shores.pdf

South West brochure <http://www.nationaltrust.org.uk/main/w-coastal-issues.pdf>

Restoring the dunes at South Milton Sands

The National Trust has implemented an ambitious project to re-establish sand dunes at one of its popular beaches. South Milton Sands is a beautiful stretch of sandy beach on the South Devon coast. Acquired by the Trust in 1980 the old timber sea defences had deteriorated and were no longer protecting the shore from coastal erosion. So, in February 2009, work began to re-establish the sand dunes in the area to ensure that visitors can continue to enjoy a safe and pleasant beach.



The car park area at the start of the project © Simon Hill, National Trust

The problems at South Milton Sands originate from the 1960s before the National Trust owned it, when vehicles started to park on the sand dunes, destroying this natural and flexible sea defence. Sometime during the late 1960s and 1970s a car park was constructed on the entire site. Having consulted with local residents, parish councils and other conservation bodies, the final scheme will see some of the car parking at the front of South Milton beach reverting back to sand dune. 100 tons of debris and waste material uncovered during the earth-moving were removed and dune grasses were planted to restore the area.



Works underway in 2009 to reconstruct the dune landscape © Simon Hill, National Trust

David Ford, the National Trust Property Manager for South Devon said, 'We will have to accept some changes, in total around 40 car spaces will be lost. An assessment of the parking has been carried out over the last two years and the new parking provision will be adequate for more than 90% of the days when parking is currently used. A neighbouring landowner has agreed to open a nearby field at peak times. We have been tremendously encouraged by the input local people have made into shaping the final scheme and providing information on the history of the site.'

The Trust is very keen to see the continued involvement of local people in the project. Practical activities have included the construction of board walks and planting 14,000 marram grass plants with volunteers and schools.

Children from local schools planting dune vegetation © Mike



Townsend, National Trust
Construction of access boardwalk © Mike Townsend, National



Trust

Shingle Inventory

Development of an evidence base of extent and quality of shingle habitats in England to improve targeting and delivery of the Coastal Vegetated Shingle HAP



A project has just started that will take forward work on a habitat inventory for England to improve the status of knowledge about the extent and quality of the coastal vegetated shingle Biodiversity Action Plan

(BAP) priority habitat in England (with a method that could be applied to the rest of the UK). The contract has been awarded to the Geodata Institute. The project director is Dr. Chris Hill, and Andrew Murdock is the GIS manager who will undertake project management and liaison. Roland Randall and Jonathan Cox will lead on the survey and classification aspects. Overall the team have an excellent mix of ecological, mapping and inventory skills.

The work is funded through the Defra Biodiversity R&D programme and a contribution from the National Trust. It will be led by Natural England with support from a project steering group which includes the Environment Agency, JNCC and the National Trust. Key elements of the work will be to review survey techniques and develop guidance on classification; carry out surveys of key sites and develop an updated shingle inventory layer that will be widely available. There will also be an emphasis on integrating species information into the inventory. Updates on this project will be provided in future newsletters.

Site news

Fylde Sand Dune Project

The Fylde Dune Project in Lancashire has secured funding from SITA to help continue the project for the next three years and to employ Anne Heslop as the Sand Dunes Officer. The funding adds to that already committed from the Aggregates Levy Sustainability Fund and the Lancashire Environment Fund.

The Fylde Dune Project recently reached several national



Breach in mobile dunes © Anne Heslop

newspapers (e.g. Daily Telegraph on 21 May) following the destruction of an area of privately owned mobile dunes. The area of dunes was flattened to the ground by machinery and the sand was pushed onto the foreshore in an attempt to create a new dune on the beach.

This has effectively left a gap and further wind-blown sand has now been accumulating on the adjacent road. As the dunes were privately owned the only laws which had been

broken were that of planning permission in which an illegal engineering operation had been carried out. The local authority and the Fylde Dune Project are now trying to work with the landowner to avoid enforcement action. The incident has raised many questions about the protection of our natural soft sea defences in private ownership, the land in question was designated a 'Biological Heritage Site', important for its biodiversity on a county scale but not a statutory protection. In this area the dunes are very narrow and with predicted sea level rise this kind of operation has now left a weak point in the defences.

The UK Sand Dune and Shingle Network has assisted the project by running a training course on geomorphology, ecology and management of coastal dunes for the project's stakeholders.

Sefton Coast: Cabin Hill National Nature Reserve

Cabin Hill National Nature Reserve has been gifted to Natural England, having previously been leased from a private land-owner. This 30ha area of calcareous sand-dunes, on the Sefton Coast north of Liverpool was leased in 1983 and formally declared as a National Nature Reserve in 1991.

The site has a chequered history, being severely damaged by sand-winning during the 1940s and early 1950s. A perceived threat to coastal defence led to building of a flood barrier bank across the site in 1970/71. Sand to create the bank was excavated from large borrow-pits in the former sand-quarry, resulting in extensive, shallow, seasonally-flooded wetlands (slacks), which were then colonised by dune-slack flora and fauna.

During the late 1970s and early 1980s, the borrow-pits became one of the largest Natterjack Toad (*Bufo calamita*) breeding sites in Britain. Unfortunately, despite management efforts, this population subsequently declined as vegetation maturation and invasion by Common Toads (*Bufo bufo*) made the area less suitable for the rarer amphibian.

The borrow-pits have become extremely rich in plant species. They include a large colony of the nationally declining Flat-sedge (*Blysmus compressus*), marsh-orchids (*Dactylorhiza incarnata*, *D. praetermissa*, *D. purpurella* and various hybrids) and a fine display of Grass-of-Parnassus (*Parnassia palustris*).

Other parts of the sand-extracted areas have been colonised by fixed-dune and damp-slack vegetation,



Grass-of-Parnassus at Cabin Hill © P.H.Smith

including extensive stands of Creeping Willow (*Salix repens*), together with rare willow hybrids.

Less disturbed fixed, mobile and embryo dunes extend westwards to the shore. These are floristically diverse, including a large

population of Pyramidal Orchid (*Anacamptis pyramidalis*). There are also flourishing colonies of the endangered Sand Lizard (*Lacerta agilis*) and Biodiversity Action Plan invertebrates such as Northern Dune Tiger Beetle

(*Cicindela hybrida*), Dark Green Fritillary (*Argynnis aglaja*), Grayling (*Hipparchia semele*) and Vernal Bee (*Colletes cunicularius*).

Recent management has included winter-grazing by Herdwick sheep from the Cumbrian fells, excavation of small scrapes and scrub control, including the removal of mainly Grey Willow (*S. cinerea*) from a large wet-slack, with significant biodiversity benefits (Smith & Kimpton 2008). Smith, P.H. & Kimpton, A. (2008). Effects of grey willow *Salix cinerea* removal on the floristic diversity of a wet dune-slack at Cabin Hill National Nature Reserve on the Sefton Coast, Merseyside, England. Conservation Evidence 5: 6-11.

The full text of the article by Phil Smith and more information on the biodiversity of the Sefton Coast can be found on <http://www.merseysidebiodiversity.org.uk/index.asp> (see 'magazine articles').

Tentsmuir and the Tay Estuary

Tentsmuir National Nature Reserve lies at the mouth of the Tay Estuary in Scotland and on its southern shore. The sand spit is matched on the northern shore by the Barry Buddon sand spit.

The Tay Estuary Forum, one of several similar initiatives in Scotland, has launched its Management Plan, a non-statutory document aimed at promoting future sustainable management in the Tay Estuary and along the adjacent coastline. The plan was drafted in 2008/2009 following consultation with a wide range of stakeholders.

The Management Plan covers the region from the River North Esk on the Angus Coast to Fife Ness, including the Tay Estuary to Scone. It aims to unite the many initiatives operating along this diverse stretch of coast into a single framework.

The Management Plan addresses society, environment and economy and includes subject areas such as local management initiatives, renewable energy schemes, sea level change, coastal access issues, beach litter, proposals for natural habitats and species, preservation of cultural heritage and coastal enhancement schemes.

Please visit <http://www.dundee.ac.uk/crsem/TEF/> for more information.

The latest newsletter for the Tentsmuir National Nature Reserve can be found at http://www.snh.org.uk/nnr-scotland/downloads/publications/Tentsmuir_NNR_Newsletter_20.pdf

The newsletter reports on progress with grazing the site with Limousin cattle from April to October which has been made easier by the installation of a borehole pump to provide drinking water.

Scottish Natural Heritage has teamed up with Forestry Commission Scotland and the Fife Coast and Countryside Trust to launch a new website www.tentsmuir.org. Have a look –it's an excellent example of partnership working and has some superb photographs too.

International News

First snap-shot of the condition of European habitats completed

The first ever systematic assessment of the conservation status of Europe's most endangered habitats and species has been carried out as part of the regular reporting of the EU Habitats Directive under the requirements of Article 17 of the Directive. This has been a major undertaking but also a very open process with opportunities to comment on national reports and the European reports.

The results are now in and published through the European Topic Centre on Biological Diversity on <http://biodiversity.eionet.europa.eu/article17>. Through this link information on the status of the habitats and species of the Habitats Directive for the period 2001-2006 can be accessed. Please take the time to have a look at the database. The database can be used to focus on a particular habitat/species across one or more biogeographical regions, or to look in more detail at the habitat/species at Member State level and also to compare the share of habitat types between Member States and the level of knowledge about the habitat/species. The final reporting stage has been the publication of EU-wide summaries for the habitats/species.

In the composite report prepared by the European Commission (COM(2009)358 final) it is made clear that coastal habitats within Europe are under increasing pressure from tourist and urban development and that "dune habitats are under severe pressure throughout the EU with almost no favourable assessments". The overall situation for the coastal dunes of the Atlantic Biogeographical Region is particularly bad.

The Article 17 reports stem from a scientific approach to assessing habitat quality and future prospects and are generally weaker on making the connection between management and current/future habitat quality. The challenge for the next reporting round (2007–2012) is to respond to some of the concerns by direct action, such as through LIFE projects, to start to turn the 'bad' and 'inadequate' assessments into 'improving' and 'favourable' assessments. This will be no easy task.



Formby Point © John Houston

We are interested, however, in pursuing, with some urgency, the establishment of a European Dune Network covering all biogeographical regions to champion the issues and to highlight how it is in the interest of Member

States to protect the special values of dune systems and the ecosystem services they can provide. These aims are supported by the Coastal and Marine Union (EUCC) and we will be discussing with the Union how we can help to work with others to take forward the ideas.

Dunes and military use in Finland



Pirjo Hellemaa of the University of Helsinki sends news of the results of the Life-Nature project 'Restoration of dune and coastal habitats in the Vattaja Military Area, Finland'

The very interesting and clear report 'Restoration, environmental management and monitoring in the Vattaja Dune Life project 2005–2009' edited by Kasper Kosela and Marko Sievänen can be found at <http://julkaisut.metsa.fi/julkaisut/pdf/luo/a181.pdf>

Vattaja is the largest (1500 ha) Natura 2000 area containing sand dune habitats in Finland. It hosts six priority and 13 other habitat types. It is also an important military area, and in summer a popular recreational site. The main target of the Life project was to allow these uses to be matched with the nature conservation objectives of the site.

Initial survey mapped the habitat types and identified the causes of erosion from military activity and recreation pressure. The most damaged Natura 2000 habitat types were *Empetrum nigrum* dunes and wooded dunes and in places the erosion was also severe on fixed dunes covered with herbaceous vegetation. Some fixed dunes areas are burnt repeatedly, as a result of the military use, leaving only some small patches of lichen rich herbaceous vegetation. Sea pea, *Lathyrus japonicus* benefits from the removal of competitive species and is more abundant than usual in the burnt areas.

Erosion caused by the use of motor vehicles is heaviest on *Empetrum* dunes and deflation surfaces, but bare sand patches around *Empetrum* dunes are also of vital importance for some rare insects such as the moth *Scythris empetrella* (which feeds on *Empetrum*). With no trampling pressure mosses cover the sand and the most endangered insects are lost. Therefore some motor vehicle activity is allowed in these areas. Other areas of open habitats were restored by removing pine saplings.

The restoration technique in the most trampled areas was to move the damaging activities away from the Natura 2000 habitat types. Anti-aircraft guns were relocated behind the dune ridges and the hollows left in the dunes were filled with sand sown with sea lyme-grass and by planting patches of lichens. The use of motor vehicles was restricted to marked routes and parking places.

Water erosion was most obvious in bare sand patches on the slopes of trampled old wooded dunes, and access steps were built there as well as boardwalks on routes to the beach and along the most used paths. The use of paths is monitored by repeat mapping.

Old forest pastures and coastal meadows have been opened up by grazing with sheep and scrub cutting, which also prevents common reed from invading the coastal meadows. Wet dune slacks and coastal mires were restored by filling ditches to raise the groundwater level.

By Pirjo Hellemaa pirjo.hellema@helsinki.fi

Other LIFE projects

LIFE07NAT/GR/000296 Actions for the conservation of coastal dunes with *Juniperus spp.* in Crete and the South Aegean (Greece). 'Junicoast' <http://www.junicoast.gr/>

The project aims to promote and enable the long-term conservation of coastal dune habitats with Juniper species in Greece (EU Habitats Directive code 2250*). The project wishes to support the creation of European, national and local networks to support its conservation efforts.

LIFE06NAT/F/000146 Preservation of the coast biodiversity on the Gâvres-Quiberon site <http://www.site-gavres-quiberon.fr/pages/life-nature/>

The project targets the largest dune system in Brittany with almost 1000 ha of 'grey dune' within a total area of 2500 ha. Rare species targeted by the project include *Omphaloides littoralis* and *Liparis loeselii*. The project focuses on fixed dunes and dune slacks, the control of invasive species (*Baccharis halimifolia*) and awareness raising activity.

Dunes in Israel: Policy and Management

Professor Pua Bar (Kutiel) of Ben-Gurion University of the Negev recently coordinated a meeting to discuss aspects of dune management in Israel. We have made the book of abstracts available on the international page of the network website <http://www.hope.ac.uk/coast/international.html>

Despite their great importance for biodiversity the sand dunes of Israel have been relatively neglected as a site for conservation. Only 50% of the dune area of 1944 now remains and the remaining area suffers from a high degree of disturbance from illegal sand removal, off-road vehicles, invasive species etc. If this situation continues, the destruction of dune habitat and species will continue, with irreversible losses to biodiversity and amenity.

Currently, there is a single large coastal sand dune reserve (20 km²), the Ashdod-Nizzanim Sand Dune Nature Reserve and, over the last few years, a significant body of scientific research has been carried out on geomorphology, ecology and management. The book of abstracts brings together much of this knowledge.

One of the key messages of the research is that as dunes become stabilised the unique psammophile species are replaced by more common generalist species. 'Over-protection' of dunes, by removing grazing pressure and other disturbances, will actually decrease their biodiversity value. A more complex and dynamic kind of management is proposed.

The studies in Israel certainly have wider relevance especially to those managers who are also looking at the response of dune species to projects aimed at destabilising and re-mobilising parts of the dune system.

Recent publications

Compiled by Stewart Angus, Scottish Natural Heritage, Inverness

Most references include the Digital Object Identifier (doi) code.

See http://en.wikipedia.org/wiki/Digital_object_identifier for an explanation of the system.

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The Dune Restoration Trust of New Zealand

We are pleased to develop our links to the Dune Restoration Trust of New Zealand and look forward to meeting the Chairperson, Mark Dean, when he visits the UK in September.

The Dune Restoration Trust supports grass-roots conservation efforts of coastal communities. In helping people understand how coastal systems may adapt to climate change their approach is similar to the National Trust's promotion of *Shifting Shores* or the *CoastAdapt* project highlighted in our last newsletter.

Information and copies of newsletters can be found on www.dunetrust.org.nz/news.html. Currently the Trust is running a series of workshops titled 'Empowering Coastal Communities to Adapt to Climate Change'

The aim is "to provide local coastal communities, in collaboration with management agencies, with an adaptive approach to help mitigate the effects of sea level rise and increased storm activity resulting from predicted climatic change". The success of community action groups to date suggests that community-based approaches have considerable potential in promoting increased awareness of coastal hazards and climate change and assisting in the development of more resilient coastal communities.

UK Climate Projections 2009

A consortium of bodies including the Met Office Hadley Centre and the UK Climate Impacts Programme has published 'UK Climate Projections' the result of seven years work by over thirty contributing organisations. It is therefore an official, government-endorsed, state of the art review of some of the key projections of future climate change for the UK over the 21st Century. The projections provide the basis for studies of likely impacts and decisions on adaptation to climate change in the UK over the same period.

The observed trend for sea level is that it has risen by about 1mm/year in the 20th century and that the rate of rise in the 1990s and 2000s has been higher than this. The information is available at <http://ukclimateprojections.defra.gov.uk>

The work is summarised in a Briefing Report which can be downloaded from the above link.

Sea Buckthorn Workshop 17–18 September 2009

A limited number of places are still available for the workshop at Saltfleetby-Theddlethorpe and Gibraltar Point. Please e-mail houstoj@hope.ac.uk if interested. We are delighted to have full UK representation (Scotland, England, Wales and Northern Ireland) as well as input from a number of colleagues in other countries. A full report of the meeting will be published as one of our occasional papers. Further information can be found on the website www.hope.ac.uk/coast

An excellent article to introduce the workshop, 'Managing for dune scrub on the Lincolnshire coast' by Simon Cooter has been published in *Conservation Land Management* Summer 2009 (pp. 14-16).

This newsletter has been compiled by John Houston.

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Cover Photo: Shingle ridge at Cemlyn Bay, Anglesey © John Houston

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