

UK Sand Dune and Shingle Network

News Flash

International Dune Conference – Changing Perspectives in Coastal Dune Management, 31st March – 3rd April 2008, Liverpool, United Kingdom.

Delegate Registration NOW OPEN.

For details visit the network web site at www.hope.ac.uk/coast

Second newsletter of the UK Dune and Shingle Network

Introduction and Overview

Welcome to the second UK Dune and Shingle Network newsletter. Since the first newsletter published in early 2007 we have continued to develop the network and can report on a number of our initiatives as well as developments at the UK and international levels. We would like to get more response from the network members so that we can help make better connections between people in the field and also disseminate your experiences to a wider audience. Please e-mail us with your news and views on dunes@hope.ac.uk

Delegate registration is now open for our International Conference 'Changing Perspectives in Coastal Dune Management' 31 March – 3 April 2008, in Liverpool, UK. Go to the network web site www.hope.ac.uk/coast for details. There are discounted non-residential rates for site managers and research students.

Also soon on the network web site please look at two draft 'management models' for fixed dunes and dune slacks which we are preparing as part of a larger contract with the European Commission. The models have to be finalised by the end of March 2008 and we would hope to include the most up-to-date information about practical management. We have submitted the drafts to JNCC as part of the

consultation on the implementation of the Habitats Directive in the UK.

We held a successful workshop 'Working Towards Changing Perspective in Coastal Dune Management' at Plas Caerdeon in mid-Wales in May 2007. During September 2007 we coordinated a network event in Scotland, hosted by the Forestry Commission at Lossie and Culbin forests with Scottish Natural Heritage. Both of these are reported in the newsletter. If you have ideas for events please contact us.

Membership of the network has grown steadily and although focussed on the UK it has become quite international. We now have c.75 UK members and c.30 other international names on the mailing list.

We are very pleased to announce that Dr. Pat Doody is appointed as a Visiting Professor at Liverpool Hope University. A significant part of the appointment is to work with staff involved with the network to develop its activities. We welcome Pat to this senior position and look forward to his contributions.



Paul Rooney
Network Director



Dune Wetland Research in England

Dune wetlands in England are habitats of great conservation concern – they are rare (less than 500 hectares), contain communities and species of great interest, and are in unfavourable condition (the draft 2nd UK report on the implementation of the Habitats Directive assesses them as “bad and deteriorating” – see www.jncc.gov.uk/page-4060).

Key issues are the need for a better understanding of the inter-relationship of hydrology and plant communities, observed widespread plant succession, and the impact of falling water tables (particularly in the context of climate change). These issues are clearly inter-related.

English Nature began to address the first issue by commissioning research to review available information and describe a new typology for dune wetlands. This has been published as English Nature Research Report 696 Development of eco-hydrological guidelines for dune habitats – phase 1. It highlighted the paucity of relevant hydrological-related information for UK dunes. This is being addressed by three projects, one each on Braunton Burrows (Devon), Winterton Dunes (Norfolk) and the Sefton Coast (Merseyside). The first and last review existing information, whilst on Winterton Dunes this was combined with some new work. Network staff at Liverpool Hope University contributed substantially to the work undertaken on the Sefton Coast.

At Braunton Burrows, water table monitoring has been undertaken since the late 1960s along three transects across the dunes. This remarkably rare long-running data set has now been analysed in relation to local weather data for the same period. The results have great significance as the hydrology of this dune system is little affected by water abstractions, drainage or forestry plantations. The analysis concludes that there has been a decline of 5% in effective rainfall over the study period, and that the water table has fallen by more than half a metre in the same period. This has eye-popping potential consequences for dune wetlands under some climate change predictions. The transect data

was also used to describe the hydrological functioning of the site.

At Winterton Dunes, an acidic dune system, an extensive search was undertaken for historical information in order to more fully document its (and its surrounding area's) land use history, and to better understand the occurrence and distribution of the current range of species present. This part of the work should act as a model for other sites. The rest of the project focused on collecting dip-well data to better understand the hydrology of the site, and the collection of soil and water chemistry data. The initial focus of this work will be to inform management for natterjack toads at this site. This work has yet to be published. For more information, contact graham.weaver@naturalengland.org.uk

On the Sefton Coast the priority has been to bring together a wide range and age of dune wetland vegetation data to more accurately describe the changes in the vegetation communities on this site over the last 40 years or so. In addition, historical water table data was brought together for those parts of the dune system not covered by the dip well network monitored since 1976 (on the Ainsdale Sand Dunes National Nature Reserve). This includes both quantifiable and anecdotal (including visual) information. This work is about to be published. For more information, contact graham.weaver@naturalengland.org.uk

It is worth noting that the Ainsdale Sand Dunes NNR dip well data set has already been used to develop a hydrological model for that part of the Sefton Coast. This has then been used with a range of climate change prediction data to look at possible future water table impacts. For more information on this research project contact Dr. Derek Clarke at d.clarke@soton.ac.uk

The next stage, to be completed by April 2008, will be to use the knowledge gained from these studies to refine the models proposed in English Nature Research Report 696.

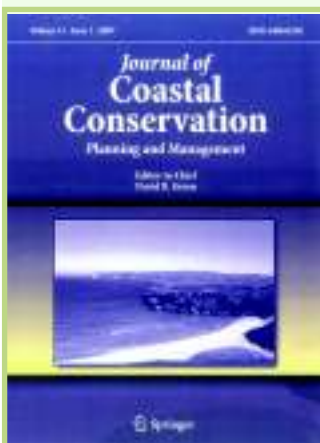
We are very keen to hear about any other water table and/or dune wetland vegetation information for other sites – however sketchy, old or unanalysed it may be! Please contact Graham Weaver as the Natural England project leader on graham.weaver@naturalengland.org.uk

Re-launch of the Journal of Coastal Conservation: planning and management

The Journal of Coastal Conservation: planning and management is the official journal of the EUCC- Coastal Union. It is a scientific journal for the dissemination of both theoretical and applied research on integrated and sustainable management of the terrestrial, coastal and marine environmental interface. After a gap in publication it has been re-launched through Springer Press.

Editor-in-Chief is Dr. David Green of the Department of Geography and Environment, University of Aberdeen and from the network both Stewart Angus (Scottish Natural Heritage) and Paul Rooney (Liverpool Hope University) are on the editorial board. So let's have plenty of papers on dunes and shingle! Instructions for authors can be found on the journal's home page on the Springer web site. Those of you who submit papers for the International Dune Conference in Liverpool 2008 will have the chance to contribute to a special 'dune' edition of this journal.

For information about the journal visit www.springer.com/environment/journal/11852



Management Models for Dune Habitats

Staff at the dune network have been asked by Nature Link International (a consortium of European nature consultancies) to undertake work for the European Commission to prepare good-practice documents on dune management for the Natura 2000 website.

This project is financed by the European Commission will provide twenty five different management examples for Natura 2000 sites with selected habitat types and their related species which are in need of active recurring management.

The examples are drawn up by using best available information, including synthesising results of management models implemented during the LIFE-Nature projects. The aim is to enable site managers to apply the models in similar habitat types in different biogeographical regions. For information on other best practice work see the following link:

http://ec.europa.eu/environment/nature/natura2000/management/best_practice_en.htm

The research and compilation work has been carried out by John Houston of the UK Sand Dune and Shingle Network, based at Liverpool Hope University. The draft models were submitted to the European Commission in early September 2007. We circulated drafts to key contacts throughout Europe to ensure that we end up with a representative document.

You can soon find the latest version of the management models on the network website www.hope.ac.uk/coast and we would welcome any comments and feedback, especially up-to-date information about the success, or otherwise, of management work. Please contribute as these will be important documents that will influence policy and practice for several years. Send contributions to dunes@hope.ac.uk marked for the attention of John Houston.

Habitats Directive: Article 17 Reporting

Article 17 requires Member States to report every six years about the progress made with the implementation of the Habitats Directive. This progress report requirement is also now linked to the monitoring of the commitment made at the Gothenburg Summit in 2001 to halt the loss of biodiversity by 2010.

Further information on the process can be found at:

http://ec.europa.eu/environment/nature/knowledge/rep_habitats/index_en.htm

Although this is the second reporting period (2000-2006) it is the first time that the UK Government has published the full audit trail to support conservation status assessments of habitats and species. A vast amount of information on the status of habitats and species in the UK has been assembled on www.jncc.gov.uk/article17

The conservation status assessment process is complex. Each assessment has four parts, which are brought together using a format agreed at a European level, to form the overall assessment. The conservation status assessments use information from the UK network of protected sites and also the wider countryside and are, therefore, more than an assessment of protected site condition

JNCC has recently completed a consultation on draft conservation assessments for the Atlantic Biogeographic zone. We encouraged members of the network to take part in the consultation and submitted comments under fixed dunes and humid dune slacks based on our current work on management models for the European Commission. The main point we made was that it is not possible to understand everything happening in the UK without taking account of wider science and management experience within the biogeographical region.

JNCC are now considering the responses

received and will amend the draft assessments as necessary before submission of the formal report to Defra and the devolved administrations for approval and transmission to Europe. In the meantime, however we would recommend that you visit the website and download the reports.



Conference Report – ICCD 2007.

International Conference on Management and Restoration of Coastal Dunes. October 3–5 2007. Santander, Spain.

This was a significant event to celebrate over a decade of dune restoration work in Spain. Spanish dune systems, as many will know, have suffered greatly over the last 50 years or so from development and uncontrolled recreation pressure. In some instances whole dune systems have been destroyed and once the vegetation is removed the continued pressure of people prevents any re-vegetation.

For those of us who have spent days constructing sand fences, planting marram and building boardwalks this was an inspiring event. A grass roots movement to protect dunes in Spain has grown into a well-organised machine with a national dune plant nursery producing over 800,000 marram plants a year, enough to support a series of restoration projects. Other plants are grown in the nurseries and whole foredune and mobile dune communities can be

established with sea holly, sea daffodil, sea spurge, marram and sand couch.

The control of public pressure is essential, mainly with the use of fences, signs and raised boardwalks, some of which were massive investments showing the level of financial support that the work can attract.

The experience has been compiled in a dune restoration manual (Manual de restauración de dunas costeras) which is also a guide to the geomorphology and ecology of Spanish dunes. An English language version may be produced at a later date.



Greenhouses at dune plant nursery raising dune grasses

Delegates arriving at the National dune plant nursery



Although about two-thirds of the 200+ delegates were from Spain there was a good international turn-out which helped to give the Spanish authorities a vote of confidence. In particular it was interesting to share European dune studies with very similar work being carried out in Israel. The UK network is actively pursuing potential links with both Spanish and Israeli dune colleagues.

During the conference Paul Rooney of the UK Dune and Shingle Network, along with Fred van der Vegte of the University of Amsterdam / Dutch Dune Network and Albert Salman of the EUUC- Coastal Union, led a workshop on dune networks. The outcome was a decision to establish an Iberian peninsula and Macronesian Isles dune network. The workshop also considered opportunities to support the development of a European dune network. A transcript of the workshop will be made available through the network web site.

Proceedings for the conference are in preparation and selected papers will go forward to the Journal of Coastal Research.

Delegates on a long boardwalk during the ICCD 2007 field excursion. Umbrellas were required to keep off the sun!



News in Brief

International Dune Conference

Delegate registration is now open for our International Conference 'Changing Perspectives in Coastal Dune Management' 31 March – 3 April 2008, in Liverpool, UK. Go to the network web site www.hope.ac.uk/coast for details. There are discounted non-residential rates for site managers and research students.

Sand extraction at Formby Point, Sefton Coast

Sefton Council has received a grant from the Aggregate Levy Sustainability Fund, administered by Natural England, for an investigation into the history of sand extraction at Formby Point. Large quantities of sand were removed over at least a 50 year period, so much so that the sea defences were compromised, leading to enactment of a Coast

Protection Order and construction of a secondary flood defence. The study will research the industry and its legacy and will also consider potential restoration actions linked to BAP targets. If anyone has carried out similar studies looking at sand extraction, especially pre-WWII, we would like to hear from you. Contact john.houston@leisure.sefton.gov.uk

Sefton Coast Research Meeting

To celebrate 30 years of coastal management in Sefton a research meeting will be held in September 2008. The meeting will update the book *The Sand Dunes of Sefton Coast* published in 1993 by National Museums and Galleries on Merseyside. The meeting will include subject reviews and presentations on recent work. For further information please contact Graham Lymbery graham.lymbery@technical.sefton.gov.uk

Buglife good practice advice

Sand dunes and shingle are an important habitat for invertebrates. Dunes are especially important for the BAP species northern dune tiger beetle *Cicindela hybrida*, Bright wave

moth *Ideaea ochrata cantiana*, a spider wasp *Evagetes pectinipes* and Cruxifix ground beetle *Panageous crux-major*. Notes on best practice guidelines for habitat management for dune invertebrates can be found on the website;

<http://www.buglife.org.uk/conservation/advic/eonmanagingbaphabitats/coastalsanddunes.htm>

Vegetated shingle is important for BAP priority species brown-banded carder bee *Bombus humilis*, large garden bumble bee *Bombus ruderatus*, short haired bumble bee *Bombus subterraneus*, and the hopper-bug *Aphrodes duffieldi*. Wetlands within shingle sites are also important for the medicinal leech *Hirudo medicinalis*.

<http://www.buglife.org.uk/conservation/advic/eonmanagingbaphabitats/coastalvegetatedshingle.htm>

The Big Hope – Coastal Strand

'The Big Hope' is an international Congress for people aged between 18 and 35 years of age. The aim is to bring together future leaders in Liverpool, the European Capital of Culture, 4th—11th June 2008. One of the five themes of the Congress is 'Environment and Sustainable Development' and a 'strand' within this theme is coastal dune management. We have some limited sponsorship available to support participation for invited expert speakers and delegates in the coastal dune strand. General information on the event is available at www.bighope.ac.uk. For information on the coastal dune management strand please contact Paul Rooney at dunes@hope.ac.uk

Workshop participants on a high dune at Morfa Dyffryn.



Working Towards Changing Perspectives in Coastal Dune Management

The network organized a dune workshop at Plas Caerdeon, Snowdonia National Park, north Wales, 29-31 May 2007. The model used for event has been employed successfully on three occasions by the 'International Network for Learning & Teaching Geography in Higher Education' (INLT) to engage in collaborative discussion and writing (Hay et al., 2000; Healey, 2006). The network organisers of this coastal dune workshop have participated in this INLT process.

The aims of the workshop were to promote innovative, creative and collaborative research as well as critical reflection on coastal dune management facilitate the exchange of materials, ideas and experiences concerning coastal dune management advance understanding and conservation practice of coastal dunes.

The workshop itself is just one part of the process as it required participants to prepare for the event and complete follow up tasks in the production of a paper. This process aims to develop papers that are 'over-arching' in nature and/or address the 'grey literature' e.g. unpublished reports or inaccessible sources. The papers will be presented at the international dune conference Changing Perspectives in Coastal Dune Management, 31 March to 3 April 2008, in Liverpool, UK which intends to challenge and reassess the way forward for coastal dune management.

In organising the workshop four groups were formed around selected key topic areas / issues.

- Climate change and coastal dynamics
- Trends in plant communities
- Human use
- Approaches to coastal dune management

The topics were determined by the organisers, and workshop participants were invited and able to apply to participate as members of the network. The workshop required participants to prepare for the event through on-line / e-mail discussions and to complete follow up tasks in the production of a paper.

The workshop stretched over three days and two evenings. The 'face-to-face' and 'in-the-field' elements were intended to promote discussion, reflection and social interaction to facilitate

participants in working together effectively to develop their topic paper. The 'working time' included opportunities for groups to work together on their topics, time to report back group progress to all workshop participants and receive feedback

In total three field visits were facilitated by the Countryside Council for Wales to Ynyslas dunes, part of the Dyfi National Nature Reserve, Morfa Harlech National Nature Reserve, and Morfa Dyffryn National Nature Reserve. Our thanks go to Graham Williams and Mike Bailey of CCW for the field visits. Evening events were provided including a bizarre dune quiz and a 'Values in Nature and Environment Project' (VINE) workshop facilitated by Mike Alexander.

During the workshop the participants identified the following general challenges –

Key challenges for coastal dune management

- Dune dynamics – stability / instability / RSL / ecological succession
- Appropriate management responses
- Underpinning management with research

Key challenges for coastal dune managers

- Interpreting change to public / politicians / stakeholders
- Politics
- Stakeholders and community relations
- Constraints of management and limited resources
- Human use of dunes – recreation

The whole process is being evaluated and the results and group outcomes will be presented at the international dune conference in Liverpool. For the workshop itself the final comments were positive – for example ...

"All discussions have been useful, stimulating and supportive. One of the main values of the network is in providing support and reassurance that we are not alone in the struggle!"

References

- Hay I., Foote K. and Healey M. (2000) From Cheltenham to Honolulu: the purposes and projects of the International Network for Learning and Teaching (INLT) in Geography in Higher Education 24(2) 221-227
- Healey, M. (2006) From Hawaii to Glasgow: The International Network for Learning and Teaching Geography in Higher Education (INLT) Five Years On Journal of Geography in Higher Education 30 (1) 65-75

Coastal Forestry and Restoration of Dune Habitats

The Dune and Shingle Network organised a field excursion to north east Scotland to some of the most impressive dune and shingle sites in Britain. We report on the two day event below.

Lossie Forest and Culbin Forest, Friday 7th September

This part of the event challenged dune conservationists' established understandings of 'naturalness' in relation to dune scrub and woodland, and identified outline options for favourable status management for the sites. It was hosted by Forestry Commission and supported by Scottish Natural Heritage, at Lossie Forest and Culbin Forest, Moray Forest District.

Stephen Turnbull of the Forestry Commission submitted the following report of the event – The Forestry Commission is at the forefront of dune restoration in the UK, and is keen to understand how best to put theory into practice, and equally whether it is public money well spent. Moray Forest District has been actively attempting to restore dune habitat at two sites – Lossie and Culbin - with very different (and unexpected) results. The field trip to these sites and the resulting discussions,

allowed some of us their first glimpse of the realities of dune restoration, and for all of us it challenged our concepts of habitat restoration as a whole.

As a member of the Forestry Commission directly involved in the prioritising and implementation of conservation efforts, the trip raised some very difficult questions. Following the initial woodland clearance, what further intervention was required? What was the vision of the climax habitat? And who's vision were we to follow? To give a specific example, at Lossie forest there is an annual motorcycle event, which passes through a section of the dunes. At the time of the meeting there was voiced the opinion that by moving the course of the motorcycle event, the level of disturbance could be raised to the point where the dunes became active. This, to me, seemed like a good use of our existing resources and one that could bring the goal of dune restoration a step closer. Since the meeting, other opinions have been voiced stating the polar opposite – that widening the influence of motorcycle disturbance will negatively impact the plant communities, and to create the level of disturbance necessary for an active dune system to come into being, is not only unpractical, but also unwanted.

So, what is the answer? To be honest, I have no clear idea. With so many differing perspectives and with the pressures that exist on our limited area of land, an unequivocal solution simply does not exist. However, I came away from this meeting with the certainty that we were all working towards a common goal....

Morrich More, Saturday 8th September

Morrich More is a large strandplain dune and saltmarsh system located west of Tarbat Ness in north east Scotland. It is a RAF bombing range and not a place to get lost in with a caravan as these are used for target practice! It is also one of one two notified sites in the UK for dunes with juniper *Juniperus communis* (EU priority habitat), and the most important.



Beach at Culbin.



Tank target on the bombing range at Morrich More.



Juniper scrub at Morich More

Special permission is required to visit so we are very grateful to Dr. Tom Dargie for making the arrangements for our visit. Our group was Stewart Angus (Scottish Natural Heritage), Graham Weaver (Natural England), Graham Williams (Countryside Council for Wales), Fred van der Vegte (University of Amsterdam), Paul Rooney and John Houston (Liverpool Hope University), all in all a good national and international group!

The scale of the site is appreciated from the RAF control tower. The strandplain contains a complete record of 7000 years of coastal evolution stretching north eastwards away from Tain which is built atop a raised beach cliff feature. The distance from the cliff foot to the current high water mark is 6.5 km. The site is between 3.5 to 4.5 km wide.

The dunes form a series of ridges separated by freshwater and saltmarsh 'lows'. The older dunes are covered in open juniper and gorse scrub or, where the military activities cause regular fires, by heather. The whole site is grazed by sheep and it has been for centuries. Rabbit numbers are also high in parts of the site; the greatest density was noticed to be in the centre of the bombing range, a good example of habitat creation by the military!

There have been some concerns about the impact of grazing on juniper. Some experimental plots were established in 1998 to monitor the impact of grazing on juniper re-

generation; the study has now finished.

Stands of juniper cover about 10ha and are well-developed on the dry ridges and transitions to dune slacks. The dune slacks are generally acidic and it is matter of discussion whether they are classified as dune slacks or wet heath. The dune ridges are generally low; some under 1m, but the most seaward dunes are developing into a small dune system several metres high. The reason for this larger dune ridge is not known although the general trend is for the Morrich More to continue to accrete.

We would like to thank Squadron Leader McKeown, RAF Bombing Range, Tain, and Forestry Commission for access to this special site

Sand dune processes and management for flood & coastal defence

The outputs of this Defra study are summarised in a 5 part final report, FD1302, delivering comprehensive assessment of sand dune morphology and processes for coastal flood risk management. The effects of changes in climate and sea level are considered to allow proposals for the evolution of future schemes, and the importance of dune systems for coastal defence is underlined. The report is intended to inform local engineers and other coastal managers concerned with practical dune management, and to act as stimulus for further

research in this area. The report is available at <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=9051#Description>

A quick note from Harley Spence – Chairperson of the Dune Restoration Trust of New Zealand

Kia Ora / Greetings from New Zealand to everyone involved the “UK Sand Dune and Shingle Network”!

It was great to meet your colleagues (Paul Rooney, John Houston and Sally Edmondson) from Liverpool Hope University at the recent ICCD07 Santander conference in Spain. Dune management is certainly an ongoing challenge throughout the world!

The Dune Restoration Trust of New Zealand provides an open and collaborative forum to discuss dune management issues, provide direction and funding for sand dune research and disseminate scientifically sound restoration and management techniques. Over the last 10 years or so the Trust’s network has built up to include community groups, Maori groups, regional and district councils, consultants, indigenous plant nurseries, educational institutes, and coastal land and forest owners.

The New Zealand sand dune ecosystems developed in geographic isolation and were



The New Zealand Dune Trust members during a field meeting.

sheltered from any human influence until around 900 years ago. This is probably the most significant difference when comparing “our dunes” with those of the UK and Europe! Another difference between the UK and NZ dune systems is that here we have two key indigenous sand binding species on the foredune’s seaward face: *Spinifex Spinifex sericeus* and the endemic *Pingao Desmoschoenus spiralis* (Fig. 1). The European Marram grass *Ammophila arenaria* that you are all familiar with is often the subject of eradication programmes!

The Dune Restoration Trust of New Zealand is seeking to collaborate with other networks around the world to develop and disseminate key messages about the importance of sand dune ecosystems, management and restoration techniques and is also keen to facilitate complimentary research programmes. For example, the expected impacts of accelerated sea level rise associated with climate change, is one area where I think the importance of dune restoration and management is not well recognized.

Our national conference this year being held here in Wanganui, New Zealand 5-7, March 2008 – we would welcome any UK visitors! So now that we have made this formal connection, between dune networks we look forward to sharing ideas and experiences with you in the future!

For more details on the Trust, the 2008 conference, or to join our mailing list, e-mail our co-ordinator Natalie on Natalie@dunestrust.org.nz – or me directly harley@coastline.co.nz



The endemic Pingao Desmoschoenus spiralis