



European Dune Network

Sharing experience across borders

Newsletter Number 2: July 2011

Welcome to this second edition of the European Dune Network newsletter prepared by the Sand Dune and Shingle Network at Liverpool Hope University. Thank you to all our contributors. We received more information than we can publish which indicates that there may be a demand for a more permanent newsletter.

It remains our long-term aim to establish a permanent European Dune Network and this has been the focus of a submission to the Interreg IVC programme in April 2011 called 'Dunes 2100' led by the Coastal and Marine Union-EUCC.

To prepare the submission a partnership of regional authorities and supporting scientific institutions came together in early 2011 and worked through the process of preparing and submitting the application with Maria Ferreira of EUCC. The long term aim of the project Dunes 2100 would be to improve the conservation status and future prospects for coastal sand dunes in Europe by influencing regional policy, which in turn can develop and implement sustainable solutions.

The overall objective of the project is to provide the knowledge and tools to assist European regional policy makers and local Natura 2000 managers to work towards the EU target to halt the loss of biodiversity. The project would promote sustainable approaches to the conservation of dune coasts as ecosystems providing vital services to local communities.

To do this the project will identify good practice in the management of coastal sand dunes across Europe, will disseminate this knowledge to practitioners, policy makers and other stakeholders and will establish a European Dune Network to provide long-term support and a source of up-to-date information. By the end of the project it would be our intention that every EU Member State with coastal dunes will be represented in the European Dune Network.

Each of the project partners will also produce a long-term management framework for their sites based on an approach to ecosystem services, which takes account of coastal change prediction, climate change forecasts, trends

in vegetation and changes in demand and uses.

The sub-objectives are;

- To develop the capacity of partners and also the knowledge and capacity of other stakeholders
- To encourage the development of national and international dune networks
- To use the knowledge to give advance warning of potential problems, e.g. impacts of future sea level rise, spread of alien species with climate change etc.

The project partnership includes France, Italy, Greece, Bulgaria, Lithuania, Ireland, Netherlands, Portugal and UK but the intention would be to involve representatives from all EU Member States with dune coasts.

Contact points for the dune network

Although our hopes are to develop a broad network of practitioners across Europe to do so we need to develop a network of contacts. We are looking for at least one contact person from every participating country so that we can exchange news and disseminate information to national networks. So far the following people have offered to join us as national contact points:

Portugal – Francisco Tavieria Pinto
Germany – Gerald Schernewski
Netherlands – Fred van der Vegte
Italy – Antonio Perfetti
Poland – Tomasz Łabuz
Bulgaria – Margarita Stancheva
Latvia – Ieva Rove
France – Guillaume Lemoine

It is early days for any network and we have no official structure, so we are not limited in any way to one representative for each country. So please, if you would like to join the e-mail group exchanging information on the conservation and management of dune coasts please let us know. One particular function of the network would be to publish contact details and information on EU-funded LIFE projects relating to coastal dunes.



Dune Landscape of Spiekeroog, German Wadden Sea

Dune conservation in North France

Returning the wild with mechanical diggers!

When we talk of wanting to manage a wild place we are faced with a paradox. The wild is, by definition, a place apart from man and his interventions. Wanting to manage the wild is, perhaps, an unconscious desire to master it, mark it with man's print or control it. Equally, managing a wild area involves implicitly recognising that the latter is no longer wild, because the area under consideration no longer seems capable of maintaining its own particular characteristics as regards its combination of habitats, species and ecological functions.

In the interest of protecting habitats or species, which seem to have cultural value, many land-managers have devised and developed ambitious projects of restoration and then management. For the good of an ecosystem, management plans, based on scientific surveys and on a system of prioritization, aim at proposing management actions which favour such and such a habitat, plant or animal community. These actions are sometimes extreme or otherwise can be akin to eco-gardening in their surgical precision.

Faced with these approaches, more and more voices are being raised and advocating a non-interventionist management style or, quite simply, no management at all, leaving nature to sort itself out, in its own way. Ecosystems will age, become wild and progressively return to a state which they must have resembled before man's arrival.

Let us, however, avoid being too simplistic. Wanting to do nothing more can only be justified if this return to the wild is accompanied by the restoration of a "regime of disruptions" which would allow the spontaneous diversification of these mature ecosystems. Leaving nature alone, without restoring the functional elements of the ecosystem is a short-sighted view of nature and the wild.

The example of the North Sea dunes of the Dunkirk coast

To the east of Dunkirk land managers wished to develop a new approach to dune conservation. They wanted people to appreciate that the dunes are not systems characterised by the developing habitat of extremely mature scrub and woodland, but that, on the contrary, their 'naturalness' lies in their dynamic nature, involving their continual reshaping. Unfortunately this no longer occurs as the dunes have been fragmented with the growth and regular expansion of coastal resorts; there is no winter flooding as the level of the dune water table has been lowered by pumping water away for use by local populations and industries; time has seen the disappearance of any large herbivores and then the rabbits, which replaced them; and finally the excessive stabilisation of the white dunes to avoid sand loss and the constraints that this imposes on the land and on the infrastructures on the edge of the dune massifs - all this has paralysed the dune dynamics. Over a ten year period the blocking of natural processes has resulted in a general encroachment of scrub and the disappearance of animal and plant communities which were characteristic of the dunes and these new wooded areas have created a certain image of what is "natural".



Within the scope of classic management procedures the Departmental Services, like numerous other land managers who are responsible for sites designated as "Espaces Naturels Sensibles", have

restored various very scrubby areas in order to maintain and restore the dune grasslands and alkaline slacks. These areas, which provide a habitat for the great majority of protected and native species, have for some time been managed mechanically (mowing machines) or by grazing. All these habitats are, however, extremely dependent on regular management, involving eco-gardening processes over large areas. In this way the land manager tries to conserve a representative and diverse array of samples of habitats and native species. A "collection of habitats" is conserved as in a new type of botanical garden and is maintained in a way which could be described as museo-geographical... even though each work of art is alive and continues to evolve.



The above system was quickly acknowledged as inadequate and for the Département du Nord it seemed opportune, therefore, to change its approach and to give up protecting the existing heritage in favour of creating conditions for this site to evolve naturally. In order to recreate the most natural conditions for the functioning of the dune ecosystem the management team wanted to find the means of replacing the storms, which were no longer happening, and the subsequent effects of turning over and disturbing the soil. From 2005, therefore, using large forest tractors and mechanical diggers, significant clearing and terracing were carried out in the dunes to the east of Dunkirk in order to reveal a vast area of bare sand, which could be moved and remodelled by the wind, thus giving free rein to natural and spontaneous processes... creating pioneer sites with the opportunity to evolve freely, in the course of time, into thickets and forest, passing through all the different stages of vegetation... Regular repetition of this type of work should enable the dunes to accommodate all its characteristic habitats and, we hope, eventually allow man to stop the fiddling, time-consuming and costly operations which only create the early conditions for a series of plants. Could this be a sustainable management system?

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Restoration of humid dune slack habitat on the Belgian coast: Hannecart Wood

On a visit to the Belgian dunes in October 2010, Sue Rees, the coastal ecologist for Natural England was astonished by the success of a project to restore wet slack communities which seemed to achieve the impossible of what appeared to be full recovery of the habitat from 50-year old alder plantations. The lesson shows that sometimes managers simply have to have faith in their actions. The account below is a summary of information provided by Jean-Louis Herrier, Marc Leten and Hannah van Nieuwenhuysse of the Flemish Agency for Nature and Forests.

A former tidal beach plain of the medieval Yser estuary between Nieuwpoort and Oostduinkerke, cut off from the sea for almost seven centuries, still forms an elongated depression between two dune ranges.



Location of Hannecart wood in the former Yser estuary (Cassini map, 1756).

The lime and iron rich seepage water feeding this primary dune slack from two sides creates an ideal habitat for basiphilous and peaty coastal marshland, with local decalcified infiltration zones. Historically the slack was used as a grazed and mown meadow, with old records of rare plant species, but the area gradually became transformed into arable land. In 1913 a remnant of the historical grasslands (the 'Doolaege') was studied by the botanist Louis Magnel. He was puzzled by the strange and unexpected combinations of calciphilous (*Primula veris*) and rather acidophilous (*Succisa pratensis*) species, of plants from nutrient poor (*Anagallis tenella*) and nutrient rich (*Cynosurus cristatus*) conditions and of species from peaty (*Eriophorum angustifolium*) and moderately dry soils (*Briza media*). With this unusual species combination he probably encountered one of the last remnants of a once widespread type of coastal habitat ('old dune slack vegetation') of which almost no recent examples are known along the Flemish coast.

Between 1930 and 1950 the privately owned site was gradually afforested with black and grey alders and called 'Hannecartbos' (Hannecart wood) since: only very small relicts of unfertilized humid dune grassland remained. Part of the site (31 ha) was purchased by the Flemish Region in the early 1980s as a nature reserve.

In 1999 a management plan was approved for the restoration of the Natura 2000 habitat '2190 humid dune

slacks (dune slack grasslands)' from the alder plantations and bramble scrub.



Deforestation and removal of debris and top soil to restore humid dune slack

The restoration measures were carried out in 2005 as part of the LIFE Nature project FEYDRA. It included felling 6 ha of trees, the removal of debris and topsoil, the re-profiling of a former dune stream and the creation of pools.

Since the restoration was completed the site has evolved towards a very species rich (more than 360 plant species found on 6 ha in 5 years time!) and colourful vegetation type, with, partly unexpected, species such as *Juncus anceps*, *Valeriana dioica*, *Anagallis tenella*, *Carex distans* and *Carex divisa*. However, some of the colonising species (e.g. *Blysmus compressus*) did not survive past the pioneer stage.

Part of the flora is presumed to be derived from a (several centuries old?) persistent seed bank (e.g. *Carex*, *Juncus*, *Anagallis*, *Calluna*), others probably colonised through wind dispersal (orchids, *Parnassia palustris*) or management machines (*Rhinanthus angustifolius*, *Pedicularis palustris*).

There is no clear relation between the restored vegetation types and the history of the site as 19th century meadowland or arable field, although, rather unexpectedly, vegetation structure often remains more open and colonisation of typical dune slack species (*Epipactis palustris*, *Pyrola rotundifolia*) occurs faster on former (but poorly fertilized?) arable fields. Different management regimes (hay meadow, permanent grazing) increases the diversity.

The project results demonstrate that historical maps and ancient botanical data are a useful tool to help determine the restoration potential of a site, although not exactly predicting species composition of the restored habitat. At least in the Doolaege a persistent seed bank enabled the partial restoration of 'old humid dune slack' habitat after deforestation and removal of the topsoil. However, control of the groundwater regime and reduction of the nutrient supply remain key factors for sustainable maintenance of the restored humid dune slack habitat.

Reference

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Polish coastal dunes- current research projects



Natural dune accumulation, Swina Gate sandbar

Dune coasts cover over 75% of the Polish coastline and in many places they are protected including within the Natura 2000 network. The dune habitats are also important as natural dykes protecting the hinterland from flooding during storm surges. But they are also under pressure from tourism development.

The Polish government has highlighted nature preservation and sustainable tourism as key aims of coastal zone development. To date we have been using old strategies of coast protection but new scientific studies have added information on the dynamics of coastal dunes. The project Anthropogenic-Natural Dunes Dynamics (ANDDY), (<http://polishdunes.szc.pl>) helped us to participate in Sand Dune Inventory led by Pat Doody and the information can be found on Wikipedia at http://www.coastalwiki.org/coastalwiki/Sand_dune_-_Country_Report,_Poland. In 2007 we also prepared a report on the coastal dune habitats included in the Natura 2000 network.

We are now beginning a project supported by the Polish National Center of Research and Development called 'The foredunes environment location, morphodynamics and plants fluctuations – the biodiversity valuable habitat of the Polish coast (FoMoBi)'.

The focus of the project is on research of the foredune (primary dunes) habitats, in particular the range of foredune types along the Polish coast, their variability under natural and anthropogenic factors and an estimation of their state/condition in relation to reporting on Natura 2000. The study will determine the threshold conditions causing variability, temporary and seasonal variability of vegetation and mineral content and form. We will disseminate knowledge about the dynamics of the habitat and will prepare guidelines for the protection, restoration or creation of habitats.

We are also preparing a project with colleagues from the German branch of EUCC, financed by the EU in one of the subject areas of the South Baltic Programme. The main idea of co-operation in this project is the exchange of experiences in coastal dune management; searching for solutions for protection in light of tourism development, plans for future biodiversity preservation in line with EU documents and talking about Natura 2000 management plans. The project will also target local inhabitants, tourists and local authorities to increase their knowledge of the coastal dune environment.

We are very open to cooperation and exchange of knowledge in dune environment management and scientific research. Please contact us by e-mail or through our website. Contact: labuztom@univ.szczecin.pl

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Recent publications in English:

- Łabuz T. A., 2009, Distal washover fans on Świna Gate Sandbar. *Oceanological and Hydrobiological Studies* Vol. XXXVIII, Supplement 1, p.79-95, (ISSN 1730-413X), <http://www.oandhs.org/files/297.pdf>
- Łabuz T.A., 2009, The West Pomerania coastal dunes – alert state of their development. *Z. Dt. Ges. Geowiss.*, 160/2, Stuttgart p.113-122, (DOI: 10.1127/1860-1804/2009/0160-0123), http://www.schweizerbart.de/resources/downloads/paper_previews/72745.pdf
- Łabuz T.A., 2009, The increase of the coastal dune area of the Swina Sandbar, West Polish coast. *Z. Dt. Ges. Geowiss.*, 160/2, Stuttgart p.123-135, (DOI: 10.1127/1860-1804/2009/0160-0123), http://www.schweizerbart.de/resources/downloads/paper_previews/72746.pdf

News from the Italian Dune Network

The Italian Dune network seems to be going from strength to strength, judging by the event 'Conferenza internazionale do presentazione del progetto RES MAR e IV Comitato di pilotaggio' held 15-17 June in the Regional Park of Migliarino San Rossore Massaciuccoli, near Pisa. The park covers around 24,000ha along the coast between Viareggio and Livorno. In the Italian context it is an unusual example of a relatively undeveloped coastline with large areas of dune, and therefore provided a spectacular backdrop to this conference. Delegates at the event expressed strong interest and support for the Italian and European Dune Network. The first two days of the conference addressed the topic of integrated

coastal management in Italy and across Europe, but included international coastal dune presentations on the challenges for European dune conservation by Paul Rooney (Liverpool Hope University) and the innovative 'Sand Engine' work in the Netherlands by Jan Mulder (Deltares). The final day was an excursion to coastal erosion monitoring performed by the Province of Mass – Carrara. Details of the RES Mar project are available at <http://www.res-mar.eu/it/>

The final reports and layman's report (in English) of the LIFE-Nature project DUNETOSCA are available on the San Rossore website at <http://www.parcosanrossore.org/progetti/life-natura-dunetosca%E2%80%9D/progetto-life-downloads>

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The newsletter is produced in association with the Coastal and Marine Union-EUCC.

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Websites: <http://www.hope.ac.uk/coast/europe.html> and www.eucc.net

