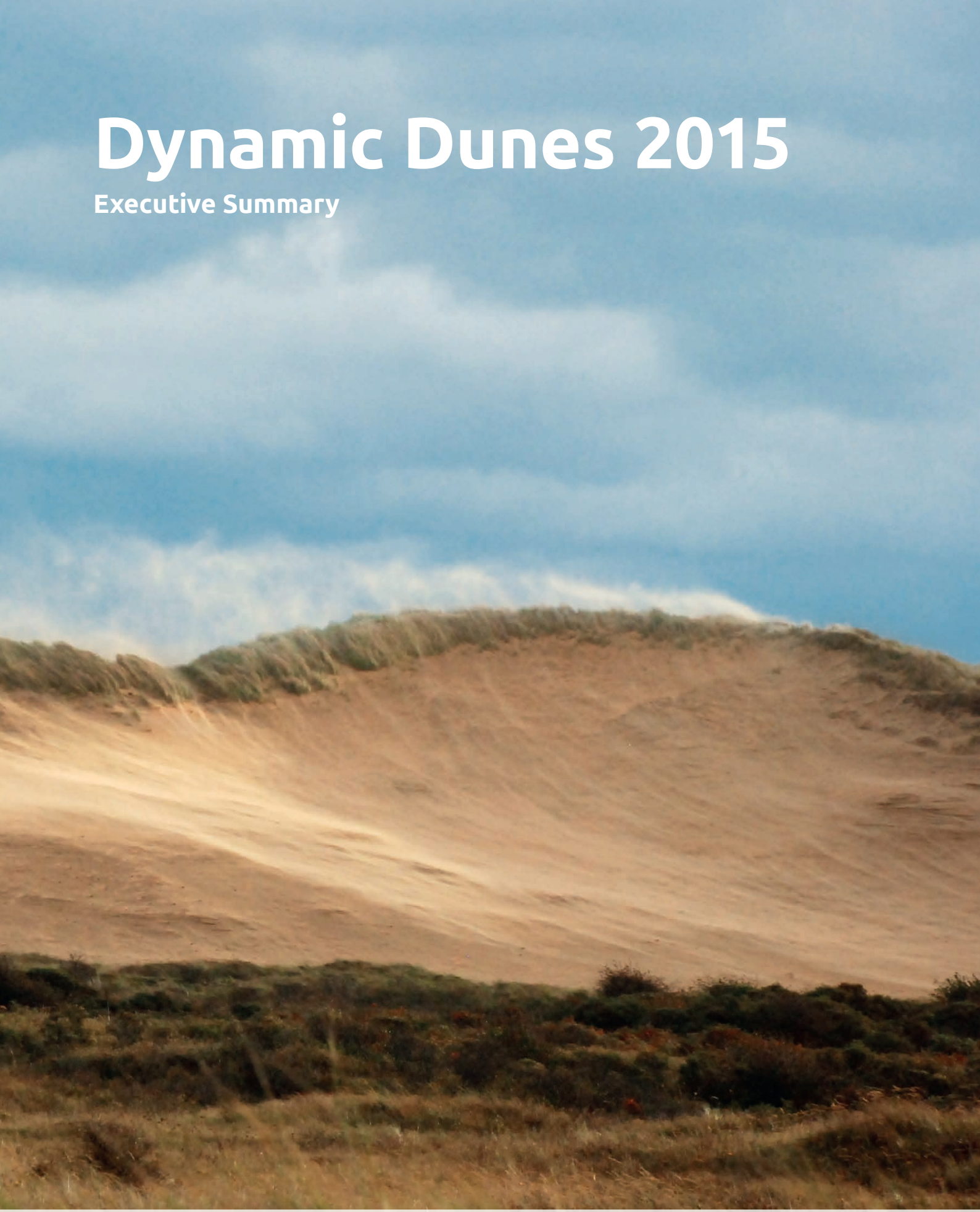
Dynamic Dunes 2015

Executive Summary



An international conference was held between the 7th-9th October 2015 on the rejuvenation of dynamic dunes and restoration of dune habitats. The conference presented the successful and innovative results of EU Life-projects Dutch Dune Revival (LIFE 09 NAT/NL/418) and Amsterdam Dunes, Source for Nature (LIFE 11 NAT/NL/776). The event was organised by PWN, Natuurmonumenten and Waternet. During the conference key topics for dune and coastal management were addressed during keynote presentations, workshops and field visits.

Key topics of the conference

The value of dune habitats is widely recognised.

Although conservation projects are underway throughout Europe, the overall condition of European dunes is still alarming. This is the conclusion of the EU 'State of Nature' report published in 2015 using information submitted by Member States through the Habitats Directive Article 17 process. This is also why special attention was given to dune habitat challenges in a European context during the conference.

Dynamics in dunes and coasts exist!

The examples shown and reviewed during the conference demonstrate that the Birds and Habitat Directives are not standing in the way of dynamics, but can support it. Coastal flood risk management projects, where nature is given space for development, can help to promote dynamics.

Atmospheric deposition of nitrogen in Natura 2000 areas is a big challenge in North West Europe.

All the efforts to reach conservation goals will be in vain if the sources of atmospheric pollution are not effectively addressed. In this respect there is a flaw in our policy coherence. Policies in areas such as such as agriculture will have to contribute in a positive way to the biodiversity challenge we are facing.

Future generations can find dunes in a better condition!

With two LIFE projects PWN, Waternet and Natuurmonumenten have made a start to address the challenges for dune habitat recovery, as stated in the EU-State of Nature Report. The LIFE projects have contributed substantially to the restoration of dune habitats, and to building and disseminating the knowledge base in this field, especially through this conference. We are at the start of some sort of 'road map' to achieve 'Favourable Conservation Status' for dune habitats and species. However, we can't walk this road alone. We need support from national governments and the European Commission. The Birds and Habitats Directives and the LIFE+ instrument play an important role in achieving this goal.

The conference triggered active participation by delegates through their participation in nine workshops each of which had a different theme. The main conclusions of the workshops are summarised here.

Workshop outcomes

Management in White dunes: is the answer blowing in the wind?

The main issue for discussion was what, in the rejuvenation of dunes and attempts to link the beach and dune systems, are the success measures? We have limited, or even stopped, dune dynamics. Because of this there is urgency to act because of climate change impacts and biodiversity losses. We should work with nature and change our management approach to dunes. The best approach is promote active geomorphological process, framed within a realistic approach to coastal management. When creating new dynamic features it is necessary to consider the constraints of local stakeholders. The aim for dynamic dune management must be to come as close to nature and natural processes as possible under local circumstances.

Creating blowouts: what to expect?

The main question discussed was if small scale aeolian activity can restore or rehabilitate degraded grey dunes. The main benefit of the effect of blowouts on grey dunes is the effect on soil chemistry through the impact of localized sand rain, and then the possible development of a secondary vegetation succession. Because small scale gradients have high ecological value, in this grey dune situation it seems better to create more small blowouts rather than a few big blowouts. There is no (natural) baseline for optimal and desirable density of blowouts in the dunes. When restoring blowouts the dimension and location choices have to balance geomorphological and ecological arguments.

Dynamic coastal management: the best way forward?

A dynamic assessment tool needs to be developed to aid dynamic coastal management . A key question is how do we get from a ‘safe’ coast to a ‘healthy’ coast, in other words a coast that purely provides flood risk functions to one that does this and contributes to nature conservation? An issue that was explored was that too much sand may lead to an ‘obese unhealthy’ coast, one that is safe but with losses for biodiversity. A reduction in sediment supply to the beach however will NOT lead to dynamics in the front dunes in a short term. A combination approach using small scale beach nourishments and fore dune trenches or notches will stimulate dune remobilisation. The best way forward is to integrate nature, safety and socio-economics. Strike the balance! Coastal management projects where safety is guaranteed and nature is given space for development is the way forward. This approach may be summarised as ‘building with and for nature’.

Research and monitoring dynamic dunes: state of the art

An international standard for Natura 2000 monitoring does not exist. It was felt that this is required. Large differences exist between Natura 2000 monitoring practices between EU countries. Knowledge exchange on this topic is crucial. We would benefit from a better definition of quality targets for habitats and agreement on shared monitoring methods. Species composition and vegetation types differ highly between sites and countries. This complicates the comparison between areas. Despite these challenges it is important to get started and keep going because we are ‘learning by doing’. It is remarkable that ecological data are often still not freely available.

Invasive alien species (IAS)

Invasive Alien Species are a severe problem for Natura 2000 sites. It is a problem that needs to be dealt with on a daily basis.

We need better information on which invasive alien species are establishing in the dunes, and what are best practices to manage them? A 'Black List' for IAS in coastal Atlantic dunes would be useful. A preliminary 'Black List' has already been drawn up, and this should be developed further. Early detection and eradication from the sites can save a lot of money. Coordinated and carefully planned follow-up management is essential. It is clear that the exchange of good practices, networking, and early warning systems could help us counteract the problem of invasive alien species. But these will not be enough. We need help from governments. The European list of invasive alien species is not sufficient for dealing with alien species in beach and dune habitats. The significance of the invasive alien species is often regional or even localized, such as Prunus serotina in Atlantic dune areas between Belgium and Denmark, as well as for Baltic dunes up to Lithuania. Therefore, we recommend a nature conservation review of alien species in the Atlantic coastal dunes, including proven management measures.

Large scale versus mosaic management in dune grasslands

What are the essentials of grey dunes and what are their favorable conditions?

Grey dunes are a broad concept. They differ depending on geology, geographical position and history. The presence of an organic soil layer in combination with rejuvenation is an essential condition. Human impact is almost always present in grey dunes. We should not promote a large scale dynamic management approach in well-developed grey dunes. Large scale management is desirable in disturbed situations. Important success factors for restoration/ rehabilitation management are the presence of lime rich sub-soils and relic populations.

Dune grasslands and fauna

Nature conservation management is giving greater attention to fauna, but in nature policy systems (such as Natura 2000 and the Dutch Programmatic Approach to Nitrogen) there is much room for improvement. The main issues discussed centered around how to deal with the number of planned restoration projects, can fauna keep in pace with the scale and the frequency of these projects, and how to develop an effective fauna monitoring method for dune grasslands.

An important recommendation is to develop an innovative monitoring method for bare sand - vegetation gradients in dune grasslands as these are most important for invertebrates. Remote sensing techniques to measure these gradients could be used more.

Grazing the dunes: are the goals and effects clear?

The workshop posed questions around whether dunes are better off with or without large grazers, and if grazing management can be dynamic. When grazing by domestic life stock is started on a dune it may be better to continue it for at least 50 years before the true effects may be seen as the system needs time to adapt. Site managers shouldn't 'graze for the government', being dictated by the demands of financial schemes, but rather should graze according to the needs of the site. It was recommended that managers should adapt their management based on what they see in the field. Grazing on dunes should aim for an 'extensive mixed agricultural' management approach. It was felt that for nature conservation purposes, dune slacks are better off with mowing as a management option.

Dune challenges in an European context

Dunes should be on the political agenda (EU DG-ENV) because dune habitats across Europe are in unfavourable and bad condition. The positive trend for dune quality reported in the Netherlands, and experiences in the LIFE projects, should be exported to the whole Atlantic region. This can be done by the European Dune Network and EUCC – Coastal and Marine Union. We need to have follow-up meetings to this conference to arrange national and international exchange of knowledge on:

a. Management and good practice
b. Methodologies
c. Social approaches

The question is how to finance knowledge exchange and 'applied fundamental' research? Because of their undesirable and declining state, dunes should be on the agenda for research and eligible for funding, for instance in. Horizon 2020. The remarkable thing is that in some regions of the Atlantic (for instance France) restoration of dune quality is not the main conservation management issue , but rather protection against the impacts of urban development.

Field trips

During field trips discussions on the key topics addressed in the workshops was continued. Field trips to the National Park Zuid Kennemerland, the Amsterdam Dunes, Koningshof, Waterbos and Stekelhoek demonstrated the first results of the LIFE projects.
To restore the biodiversity of dune environments and recover the vegetation mosaic that characterizes them, a consensus emerged in favour of geomorphologically connecting the sea-beach zone and the dunes. This was done in the LIFE projects actions by the creation of transverse corridors for the transport of sand and salt from the beach system to the landward dunes. Large scale restoration management was also done as part of the LIFE projects in disturbed situations e.g. in the case of severe problems with invasive alien species. In the grey dunes, on the inland part of the dune systems, rejuvenation works are carried out. This precise, small scale, mosaic work has to take into account the presence of relict populations (both plants and animals). Restoration works in this situation were tailor made for the local conditions and geographical context. Through the LIFE- projects actions, the negative trend in the natural values of Dutch dune habitats seems to have been reversed!

Main Conference Conclusions

1. For the Dutch dunes, the starting observation is not different from the rest of North West Europe: since decades we are rapidly losing our biodiversity by expanding dense vegetation. This is an undesirable trend, and is of significant conservation concern. Several factors were responsible for this including the loss of dune dynamics, the collapse of rabbit populations, atmospheric nitrogen deposition, and the impacts of invasive alien species. The approach shown in the LIFE projects is daring and at the same time pragmatic; 'learning by doing'. The main message is that LIFE projects deliver results; they work! They bring daring solutions for Natura 2000 challenges.

2. It is clear that the overall target of favourable conservation status can only be achieved by concerted efforts. In any one country, 75% of the area of dune habitat across biogeographical regions should be in favourable conservation status to meet the targets. Because of their worrying state, dune habitats should be higher on the political agenda of the European Commission.

3. Dunes should also be higher on the European research agenda (e.g. in Horizon 2020). European research priorities to reach favourable conservation status of all dune habitats must be assessed and agreed upon between the dune habitat expert community and government agencies.

4. Good protection does not exclude sustainable shared use. Natura 2000 sites support a multi-functional use. This is shown convincingly by PWN and Waternet. These water companies, in keeping with their own sustainable source management, have actively committed to conservation of coastal dune habitats. The stronger our dune nature is the more so called 'ecosystems services' the system can deliver.

5. The experience of successful dune habitat management and restoration in the Netherlands should be disseminated to the whole of the Atlantic biogeographical region. This can be done by the European Dune Network and EUCC – Coastal and Marine Union, in cooperation with the Dutch water companies and other nature management organisations including Natuurmonumenten.

Colophon

October 7 to 9 2015, PWN, Natuurmonumenten and Waternet organized an international conference on the dune rejuvenation and restoration of dune habitats. The congress was held in the framework of EU-LIFE projects Dune Dutch Revival (LIFE 09 NAT / NL / 418) and Amsterdam Dunes, Source for Nature (LIFE 11 NAT / NL / 776). The congress and the reporting were established with a financial contribution of the financial instrument LIFE + Nature of the European Union.

Editors: Luc Geelen, Albert Salman and Marieke Kuipers
Editing: Paul Rooney, Sand Dune and Shingle Network Liverpool
Photographs: Hans de Bie, Waternet , PWN, Natuurmonumenten
Layout: De Zware Jongens
Contact: luc.geelen@waternet.nl
Complete report: Rapport conference Dynamic Dunes 2015

Waternet, december 2015