

# Restoration of Dune Habitats along the Danish West Coast

## LIFE nature project 2001 - 2005

### Introduction:

In Denmark and in the rest of Europe dunes and coastal dune heathlands are considered to be threatened and vulnerable habitats. The first monitoring of the Danish coastal priority habitats has shown that the conservation status is not favourable. 11 Sites of Community Interest covering a project site surface of more than 24000 ha within the Natura 2000 network are included in this project. The sites are mainly selected for the

priority habitat types fixed grey dunes (2130\*) and decalcified fixed dunes with *Empetrum nigrum* (2140\*).

Three general threats are identified as follows:

1. Invasion of non-native species, especially *Pinus mugo* and *Pinus contorta*.
2. Lack of natural dynamic processes (over-stabilisation of dunes).
3. Ammonium deposition / eutrophication.

The threat from overgrowth is within

the framework of this project categorised in five degrees (from over-stabilized dunes to different percentage of tree cover). Tree growth may change the dune heathland ecosystem completely, due to the shadowing effect of the canopy and forest induced changes of nutrient circulation and microclimate. Further site specific threats concerning drainage, pressure from tourism, and barriers to habitat management due to land ownership are identified.



PHOTO: DUNE HEATHLAND (b Nord-Nielsen / SNS)



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PHOTO: TREE ENCROACHMENT, Mountain Pine *Pinus mugo* (b Nord-Nielsen / SNS)



PHOTO: Blossoming Mountain Pine *Pinus mugo* (b Nord-Nielsen / SNS)

### Actions and means involved.

A broad range of sustainable management methods are used, i.e. clearing of tree growth using both manpower and machinery, mosaic burning, mosaic cutting and removal of material, and establishment of different grazing regimes. Sustainable techniques imply no use of herbicides and great effort is made to

avoid damage to dune topography. Management of breeding localities for *Bufo calamita*.

Great emphasis will be made on public awareness and dissemination of information on project results. Experience gathered from other Danish and European LIFE-projects will be collected and

used through networking with other site managers. A monitoring programme executed by the National Environmental Research Institute (NERI) and the University of Copenhagen (KU) will investigate whether the overall goal is achieved and point out ways to optimise the management of coastal dune heathlands in Denmark (Best Practice).

### Project partners:

The Danish Forest and Nature Agency has the overall project responsibility.

Project partners besides NERI and KU are the counties of Nordjylland, Viborg,

Ribe and Sønderjylland, and the Danish Armed Forces.



Oksbøllejren (armed forces)



Sønderjyllands Amt



Ribe Amt



Viborg Amt



Nordjyllands Amt



Botanisk Institut, Københavns Universitet (KU)



Danmarks Miljøundersøgelser (NERI)



Skov- og Naturstyrelsen



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## PROJECT OBJECTIVE:

The overall objective of the project is to regain a more favourable conservation status of the Danish dune habitats. The 11 sites represent 65 % of total sand dunes FFH resource in Denmark.

The main objectives of the project are:

- Restoration of 264 ha of dune heath habitats, i.e. conversion (clearing) of non-indigenous conifer forest to priority habitat types fixed coastal dunes with herbaceous vegetation ('grey dunes') (2130\*) and decalcified fixed dunes with *Empetrum nigrum* (2140\*). Overgrowth degree IV-V.
- Clearing of 542 ha with dense overgrowth. Overgrowth degree III.
- Removal of tree encroachment on 3452 ha. Overgrowth degree II.
- Management activities on more than 2800 ha in order to deal with threats of nutrient enrichment and lack of natural dynamic processes. Overgrowth degree I.
- Restoration of natural hydrology at three sites.
- Perform land swaps in order to remove barriers to habitat management due to land ownership on Rømø.
- Improved living conditions of herpetofauna at 30 breeding localities.

A number of dune heathland bird species as Golden Plover *Pluvialis apricaria*, Wood Sandpiper *Tringa glareola*, and Crane Grus will indirectly benefit from this project.



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## Closing of drainage trenches

By closing the drainage trenches it is possible to retain water on the site and hereby extension of wet habitats. The

water will be retained in the small lakes and waters of the project area for a longer period during the summer time.

This will have a positive effect on habitats of types 2190 Dune slacks and 4010 Wet heathland.



PHOTO: Drainage trench Lyngbo Hede, site 72 (Sven Wodschow / SNS)



PHOTO: Dune slack Lyngby Hede, site 184 (Claus Eriksen / NATUR-INFO)



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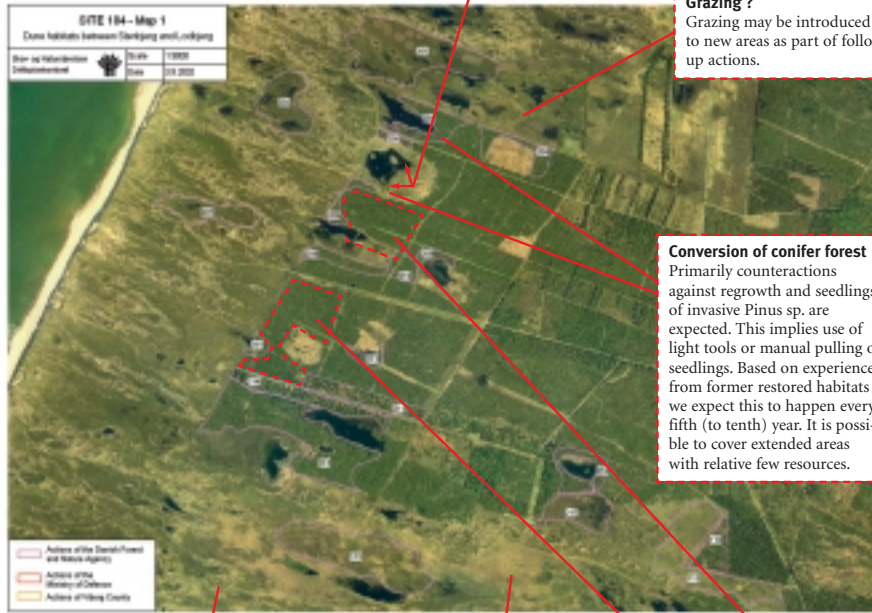
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## Long term follow-up

Follow up – actions are likely to be needed to maintain the conservation status of the sites and the positive effects of the actions in the project 2001 - 2005. This is secured through future revisions of management plans within the framework of the Nature Conservation Strategy of the Danish Forest and Nature Agency (1999).



PHOTO: Clearing from 1992, photo from 2001. Restoration of dune habitats in the wet areas of the sites has first priority. A step by step – approach is applied to avoid shock-effects on habitat (Bodil Abrahamsen / BODILABRAHAMSEN)



**Grazing ?**  
Grazing may be introduced to new areas as part of follow up actions.

**Conversion of conifer forest**  
Primarily counteractions against regrowth and seedlings of invasive *Pinus* sp. are expected. This implies use of light tools or manual pulling of seedlings. Based on experience from former restored habitats we expect this to happen every fifth (to tenth) year. It is possible to cover extended areas with relative few resources.

**Mosaic burning**  
Mosaic burning as a management method is believed to be an important part of the follow-up actions. Burning small areas / patches in a cycle longer than 20 years secures a favourable mosaic structure of the open dune habitats.

**Removal of tree encroachment**  
Removal of small pockets of tree growth will be part of follow-up actions in the future. The secret of securing low management costs and favourable conservation status is however to combat regrowth and seedlings of invasive *Pinus* sp. as early as possible.

**Further conversion of conifer forest ?**  
At some sites the areas with priority dune habitats are likely to be further extended. A step by step – approach is applied to avoid shock-effects on habitat.



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