

LIFE – Nature project

Improving the status of the coastal
lagoon Tryggelev Nor, Denmark
Layman's report

Fyn County,
Nature Management & Water Environment Division,
in cooperation with
the Danish Bird Protection Foundation under the
Danish Ornithological Society
and
the Royal Society for the Protection of Birds



Fyns Amt

EU LIFE-Nature project “Improving status of coastal lagoon Tryggelev Nor, Denmark - IMAGE”

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Project period

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Fyn County
Danish Bird Protection Foundation
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Danish Forest and Nature Agency

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Introduction

Over the period 2002–2006 Tryggelev Nor coastal lagoon has been the subject of an EU LIFE-Nature project “Improving the status of the coastal lagoon Tryggelev Nor, Denmark (IMAGE)”. This wetland and nature restoration project will lead to tangible improvement in the quality of the aquatic environment, long-term improvement in the conservation status of the coastal lagoon and the species inhabiting it, and improved public access to this nature reserve.

The possibilities for improving the aquatic environment and conservation status of Tryggelev Nor had long been the subject of discussion, but this really took off in 1995 when a storm event breached the shingle beach separating Tryggelev Nor from Marstal Bay, thereby allowing free passage of seawater. Inflow of fresh seawater could help remove the nutrients that have accumulated in Tryggelev Nor, which is one of the preconditions for improvement of the lagoon aquatic environment. In order to hinder flooding of a holiday cottage district, however, the free passage of seawater through the shingle beach was stemmed after a short time. Since then, virtually no fresh seawater has flowed into the lagoon.

The LIFE-Nature project has helped reduce nutrient input and availability in Tryggelev Nor by re-establishing Nørreballe Nor as a wetland and by enhancing water exchange in Tryggelev Nor while concomitantly safeguarding the holiday cottage district from flooding. Improvement of the aquatic environment in Tryggelev Nor is vital if the conservation status of the lagoon and its associated bird life are to be improved.



Tryggelev Nor coastal lagoon viewed from the northeast.



Background for the project

Tryggelev Nor is located on southern Langeland in Fyn County. The area is designated as an international nature protection site (Natura 2000 site) in the form of a Special Area of Conservation pursuant to the Habitats Directive and a Special Protection Area pursuant to the Birds Directive. Denmark has a special obligation to improve the conservation status of such sites, both with respect to the habitats themselves and to the species that inhabit them.

Tryggelev Nor is a coastal lagoon surrounded by salt meadows. Coastal lagoons are a relatively rare and vulnerable habitat type. The quality of the water in Tryggelev Nor is poor because of high past and present nutrient loading from the catchment and because virtually no fresh seawater flows into the lagoon, thus allowing large amounts of nutrients to accumulate in the sediment. As a consequence, Tryggelev Nor fails to meet its environmental quality objectives.

Part of the original coastal lagoon was reclaimed in the late 19th Century by establishing a drainage system and pump station. It is this area that is presently called Nørreballe Nor. As a result of the land reclamation efforts it eventually became possible to cultivate the whole of Nørreballe Nor as farmland. Reclamation also led to the loss of an important landscape element, however, namely the wet meadows between the inland fields and the lagoon. Such meadows are important as they retain a large proportion of the nutrients leaching from the catchment. Now that the 68 hectare Nørreballe Nor has been restored it has once again become a natural part of Tryggelev Nor Natura 2000 site.

The site is one of the most important bird areas in Denmark, and is owned by the Danish Bird Protection Foundation under the Danish Ornithological Society. Tryggelev Nor is home to rare species such as the bittern, the marsh harrier and the spotted crane.

The Habitats Directive and the Birds Directive specify the habitat types and animal species requiring a special conservation effort. This is the case for coastal lagoons and the bittern. The LIFE-Nature project in Tryggelev Nor therefore aims to improve the conservation status of the coastal lagoon and create new habitats for the bittern. The area encompassed by the project area totals 163 hectares.



Photo: Jan Skriver

The area was designated as a Special Protection Area in order to protect such species as the bittern, the marsh harrier and the spotted crane. One of the aims of the project is to improve habitat conditions for these species.

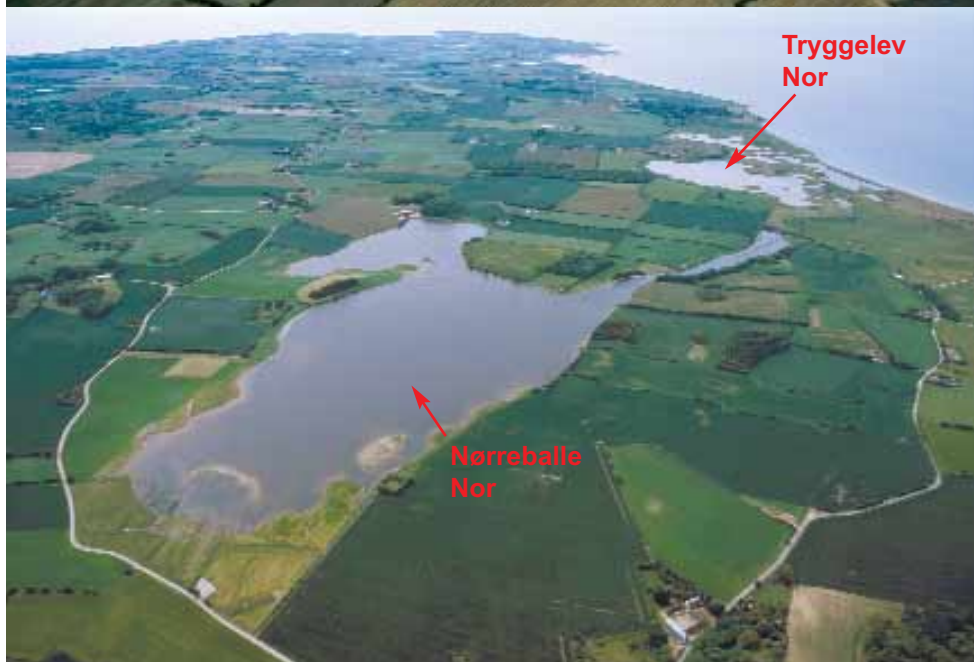


Photo: Danish Bird Protection Foundation

The previously drained area of Nørreballe Nor lay within the red line. Note that the whole of the former wetland was cultivated. The area has now been re-established as a lake.

Project objectives and measures

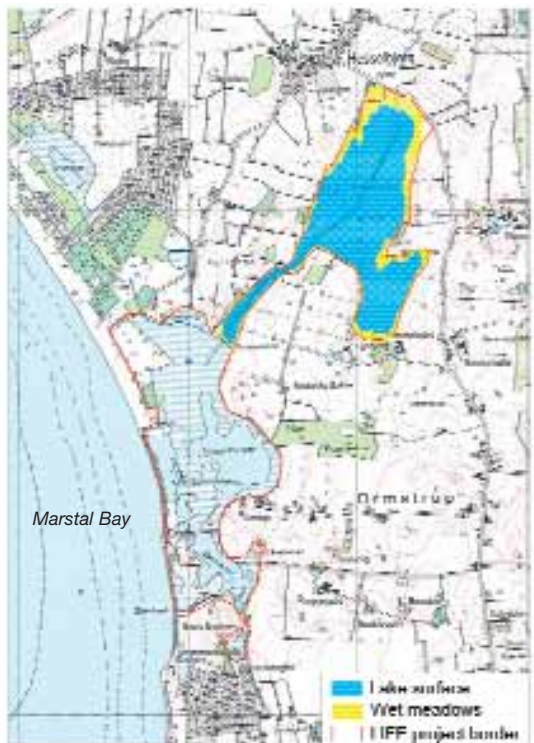
In relation to the Habitats Directive the overall objective of the LIFE-Nature project is to ensure that Tryggelev Nor attains favourable conservation status. In relation to the Birds Directive the objective is to improve habitat conditions for birds in the area, including the bittern, the marsh harrier and the spotted crane.

The attainment of favourable conservation status for Tryggelev Nor requires improving the quality of the water by reducing nutrient availability in the coastal lagoon. The aim of the project is therefore:

- To enhance water exchange between Tryggelev Nor and Marstal Bay to allow the nutrients in the lagoon sediment to be washed out. A seawater inlet has been established in the shingle beach that separates Tryggelev Nor and Marstal Bay.
- To reduce nutrient input from the catchment. Sixty-eight hectares of nitrate-reducing wetland have been re-established in Nørreballe Nor by shutting down the pumping system.

In order to improve habitat conditions for a number of bird species the LIFE-Nature project also aims:

- To ensure a more stable water level in the coastal lagoon to prevent the lagoon itself and the reed beds from drying out through measures to facilitate more natural water exchange.
- To improve nature management of the salt meadows around the lagoon through clearance of unwanted vegetation and more organized grazing.
- To enlarge the area of natural habitat. Re-establishment of wetland in Nørreballe Nor entails taking a large contiguous area of farmland out of production and creating a larger area of open water, part of which will eventually develop into a large reed bed.



Nørreballe Nor has been re-established as a wetland by shutting down the pumping system, thereby creating a large lake surrounded by wet meadows.

Project partners and stakeholders

Responsibility to the EU for administration of the LIFE-Nature project in Tryggelev Nor lies with Fyn County. The Danish Bird Protection Foundation under the Danish Ornithological Society and the foundation's English sister organization, the Royal Society for the Protection of Birds, are the project partners. The EU LIFE-Nature Programme funds 50% of the total budget. The Danish Forest and Nature Agency part-finances the project through funds allocated for the establishment of wetlands under Action Plan on the Aquatic Environment II.

In addition to these formal stakeholders, numerous others are also involved:

- Landowners in Nørreballe Nor and in and around Tryggelev Nor
- The Directorate for Food, Fisheries and Agri Business (responsible for land consolidation)
- The landowners' land consolidation committee
- Local citizens committee
- The Danish Bird Protection Foundation's local voluntary work group
- Agricultural organizations
- Local and national authorities
- Sydlangeland Municipality
- The project Steering Group
- EU advisors:
 - Nature Link International and Astrale
- National Environmental Research Institute
- Technical advisors
- Contractors



A number of construction projects are carried out in Tryggelev Nor to enhance water exchange between the lagoon and Marstal Bay.

The project phases

The LIFE-Nature project spans a period of just over four years from 2002. This type of project has to be preceded by an extensive planning phase, however, and investigations of the technical and land ownership aspects of establishing the wetland were thus initiated as far back as 1999.

One of the project's most important tasks was to consolidate the land to ensure that the farmers who relinquished land to the new wetland in Nørreballe Nor were compensated with other arable land. The land consolidation process took two years. Another important aspect of the project was the drawing up of agreements with the landowners neighbouring Tryggelev Nor as the water exchange project will reduce drainage of minor areas of land adjoining the coastal lagoon.

Considerable nature management work has been carried out on the salt meadows around Tryggelev Nor during the course of the project, including the clearance of unwanted vegetation.

Once agreement had been entered into with the affected landowners the wetland project and the water exchange project were carried out by Fyn County in collaboration with advisors and contractors.

The impact of the project on nature and the environment in the area is being monitored until the end of 2006 by Fyn County in collaboration with the Danish Bird Protection Foundation and the National Environmental Research Institute.

Construction work in Nørreballe Nor.



*Construction work in Tryggelev Nor.
Photo: Henrik Mørup-Petersen*



Project results

All the measures envisaged in the project have now been implemented:

- A seawater inlet was established in the shingle beach that separates Tryggelev Nor from Marstal Bay in autumn 2005. In addition, measures have been taken to minimize flooding of neighbouring land.
- Nørreballe Nor was re-established as a wetland in autumn 2004 and now comprises a 54 ha lake surrounded by 14 ha of wet meadow. The wetland in Nørreballe Nor also contributes to fulfilment of the target for wetland establishment stipulated in Action Plan on the Aquatic Environment II.
- Unwanted vegetation has been cleared from the salt meadows around Tryggelev Nor, and livestock pens have been established at Nørreballe Nor and Tryggelev Nor to facilitate habitat management by grazing.
- The total area of natural habitat in the Special Area of Conservation has been enlarged by 68 ha, including bird islands for breeding water birds.
- The water level in Tryggelev Nor has been stabilized to maintain the reed bed, among other things to help the bittern.
- The possibilities for public access and information have been improved.

The implementation of these measures is expected to result in:

- Improvement in the quality of the water in Tryggelev Nor because a large proportion of the nutrients flowing in from the catchment will be retained by the new wetland in Nørreballe Nor, and because the nutrients accumulated in the sediment of Tryggelev Nor will be washed out when the lagoon receives fresh seawater. The wetland in Nørreballe Nor will retain approx. 17 tonnes of nitrogen per year, thereby reducing nitrogen input to Tryggelev Nor by 70%.
- Improved habitat conditions for a more varied bird life. As an example, it can be mentioned that the avocet has already moved into Nørreballe Nor.
- Improved habitat and breeding conditions for such birds as the bittern and marsh harrier due to conservation of the reed beds.

A seawater inlet has been established in the shingle beach that separates Tryggelev Nor from Marstal Bay.



Nørreballe Nor is now a lake and the wet meadows are grazed.

Foto: Allan Østergaard



The salt meadows around Tryggelev Nor are managed by grazing.

Foto: Allan Gudio Nielsen

Socio-economic aspects

The LIFE-Nature project in Tryggelev Nor is expected to have a positive influence on tourism on southern Langeland as it considerably improves the recreational possibilities for visitors in the Ristinge area as well as for local inhabitants.

Since the arable land in Nørreballe Nor has been taken out of production, it is no longer necessary to pay for the maintenance of drainage system and pump station. At the same time the affected farmers have been compensated with alternative farmland so that they can continue production if they wish. The project has indemnified neighbouring properties against unintended effects of the measures implemented, either through financial compensation or through technical solutions.

In view of the amenity value of the new landscape it is expected that the value of properties located close to Nørreballe Nor will increase, as is the general experience from similar projects elsewhere in Denmark.

The Danish Bird Protection Foundation has purchased the whole of the wetland in Nørreballe Nor. Together with Tryggelev Nor, the area now comprises one of the Foundation's largest bird reserves in Denmark.

The dyke along the Østersøvej has been raised, among other reasons to safeguard the holiday cottages from flooding.



Public participation

Involvement of the public has been a key aspect of the project, both to ensure openness about the project and to ensure a high degree of public ownership of the project. These efforts have resulted in:

- Public information meetings
- Public guided tours in the area before and after completion of the project
- The establishment of a local committee to follow the project
- The construction of a trail in Nørreballe Nor that enables public access to much of the new wetland
- Publication of a folder about the project. The folder is available in the area in Danish, German and English
- The erection of information boards about the project and the establishment of public spaces
- Publication of press reports
- Information on the Fyn County (www.fyns-amt.dk) and Danish Bird protection Foundation (www.dof.dk), websites.



A new trail in Nørreballe Nor enables visitors to walk through much of the area.



Information boards and a folder provide visitors to Nørreballe Nor with information about the project and the area.



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