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Kennisnetwerk O+BN

The Dutch O+BN Programme: Knowledge Network for Restoration and Management of Nature in The Netherlands

INNOVATIVE KNOWLEDGE NETWORK COOPERATION MULTIDISCIPLINARY

Cover page
Before and shortly after restoration of the Brunninkhuizerbeek – a project of the OBN Expert Team Brook Valleys.
photo's: Rob van Dongen

Colophon

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Main principles

It is the broad cooperation that makes the OBN Network so powerful!

In the OBN Knowledge Network researchers, conservation site managers, universities, consultancies, NGO's and governmental bodies like provinces and water boards closely cooperate to restore ecosystems and nature reserves. In this network, knowledge and practice intermingle, and science and nature management jointly look for the most effective approaches to enhance sustainable conservation of important ecosystems in the Dutch landscapes.

The OBN Network mission statement 2009-2015 as formulated by the Ministry of Economic Affairs, Agriculture and Innovation is leading in all OBN related activities. Based on this mission statement, landscape-based 'Expert Teams' are working on development, dissemination and implementation of knowledge on restoration and rehabilitation of nature reserves, on issues regarding Natura 2000 and the EU Water Framework Directive, as well as on distribution problems of individual species. During the last decade, the OBN Network is also focussing on environmental problems, such as the effects of atmospheric nitrogen deposition, climate change, sea level rise, coastal defence, flood risks, and other changes in the hydrological systems. In these fields of research the network cooperates with many research institutes, often within the framework of governmental research programmes.

Background

During the 20th century the strong deterioration of the quality and the biodiversity of Dutch nature and woodlands slowly became eminent. In that time the country was already densely populated and industrialised. This deterioration also occurred in the 162 Natura 2000 sites, in which many species and habitat types still have an unfavourable conservation status.

Consequently, in 1989 the Ministry of Agriculture, Nature Conservation and Fisheries (currently: Ministry of Economic Affairs, Agriculture and Innovation) started the 'Survival Plan of Dutch Nature', that included a budget for nature restoration measures. In the early nineties this plan lead to a knowledge network that focused on the supervision and monitoring of these measures, and that slowly developed into the current OBN Knowledge Network. Until 2006 these measures solely focussed on the reduction of the impacts of dessication, eutrophication, atmospheric nitrogen deposition, and acidification. Nowadays a much wider focus has been established (see above under Main principles).

Atmospheric nitrogen deposition caused by agriculture, traffic and industry has huge impacts on the habitat quality and biodiversity of Dutch nature.
photo: Carleen Weebers

Stakeholders

Since 2010 for an initial period of four years, and commissioned by the Ministry of Economic Affairs, Agriculture and Innovation, the activities of the OBN Knowledge Network are coordinated by the Bosschap. This Ministry is providing an annual budget of two million euro for research carried out within the framework of OBN. OBN research projects are being allocated via calls for tenders to research institutes.

The overall responsibility for the OBN Knowledge Network lies with the Bosschap Council, that is being advised by an Advisory Committee with a broad representation from policy, research and management organisations. In 2012 a mid-term review on input, outcomes and effects helped to redefine research priorities of the OBN-Programme.

Interested in attending an International Field Symposium? Send your name, organisation, contact details, and field of interest (habitat or landscape type) to weebers@bosschap.nl.

More information about one of the Expert Teams? Contact the relevant secretary (contact details: see text).

The Expert Group Fauna and seven Expert Teams form the core of the OBN Knowledge Network. The set-up of the Expert Teams has been based on the various landscapes that occur in the Netherlands:

- Brook valleys
- Dry sandy areas
- Dunes and coastal areas
- Colline landscapes

- Fen and Sea Clay landscapes
- Wet sandy areas
- Riverine landscapes

These teams formulate research questions aimed at solving (long-term) management problems. They also supervise research projects, and disseminate knowledge by means of reports, scientific papers, brochures, expert reviews, lectures, field symposiums, and a Nature Portal (via internet).

Field Symposiums: Linking policy, research & management

Field Symposiums

Within the OBN Knowledge Network, field workshops are an important way of knowledge exchange. During these workshops, research outputs and results, and experiences with, management techniques are being shared and discussed.

Field symposium on restoration strategies for wet nature reserves.
photo: Carleen Weebers

Nature Portal

The Nature Portal (www.natuurportal.nl) acts as a broad platform for researchers, nature managers and policy makers. In this portal knowledge and news is being exchanged through five different websites: one on conservation measures and OBN reports (www.natuurkennis.nl), one on field symposiums (www.veldwerkplaatsen.nl), one on education (www.wikinatuuronderwijs.nl), one on policies and subsidies (www.natuurbeheer.nu), and an interactive one on nature management problems (www.wikinatuurbeheer).

Expert review recovery strategy atmospheric nitrogen deposition
In 2011 nearly all OBN-experts were involved in a review of the governmental restoration strategy for Natura 2000 sites affected by atmospheric nitrogen deposition.

Expert Review for Natura 2000 Seminar Atlantic Biogeographical Region (June 2012)
In 2012 OBN-experts gave various inputs on threats, bottlenecks, and management requirements and measures for the Background Document and the Case Studies for this seminar. They also organised a field excursion in a Dutch Natura 2000 area for participants in this seminar.

Also for site-related advices!

A special case – management recommendations for the brook valley system Drentsche Aa

In the brook valley Drentsche Aa, that has been partly used for agricultural purposes over a long period, hydrological restoration measures were taken in the infiltration areas and on the slopes of the valleys. Consequently, the low-lying meadow areas became that wet that during wet years mowing became almost impossible, even when specially developed machines with broad tires were used.

This raised the question whether or not to deepen the ditches in these meadows in order to be able to maintain the annual mowing, presuming that otherwise rare plant species would disappear through willow encroachment. The alternative would be to eliminate all ditches to enable paludification and renewed peat accumulation.

In order to answer this question, members of the OBN Expert Team Brook Valleys together with the area's nature managers, conducted a three day field trip in the area. The experts concluded that annual mowing is not necessary to support rare vegetations, and advised continuation of the hydrological measures higher up, also because of the lower management costs involved.

In support of this advice, the OBN-experts and the managers visited the National Park Drawa in Poland, to experience that under proper hydrological circumstances orchid rich meadows can be maintained without any management over a period of 10-15 years.

This process eventually resulted in rewetting of 500 hectares of meadows, by eliminating all ditches. As was predicted by the OBN experts, the increase of groundwater levels increased the biodiversity of the meadows and encroachment by willows did not occur, because mowing with adapted mowing machines in relatively dry years and the very wet conditions in the growing season prevented the willows from spreading.

Paludification in former meadows after large-scale rewetting in the middle reaches of the Drentsche Aa brook valley. Rewetting was achieved by raising groundwater levels on the valley flanks and by eliminating former ditches.
photo: Ab Grootjans

The Expert Teams

In all landscapes changes in land use, dessication, eutrophication, atmospheric nitrogen deposition, acidification, often biased by uncoordinated nature policies and nature management, still have a huge impact on habitats and species, causing a drastic deterioration of the once very rich cultural-historical and landscape values and the originally high biodiversity. Especially in the dune and coastal areas and along the main river systems safety aspects and drinking water production often set special preconditions to nature management.

Recent publications in English:

Haaf, M.E. ten, et al. 2011. Back to Basics. Natural dynamics and resilience on the Dutch Wadden Sea Barrier Islands. Published by the Foundation for Ecological Restoration Advice. Het Grafisch Huis, Groningen.

Molen, P.C. van der, et al. 2011. LESA, Landscape Ecological System Analysis. [http://stromendlandschap.nl/_files/LESA-international%2010102011-A5%20COMPLETE.pdf]

Brook Valleys

CONTACT: T. Termaat (secretary) - tim.termaat@vlinderstichting.nl

IMPORTANT HABITAT TYPES: H3260A, H4010A, *H6120, *H6230, H6410, H6430A, H7140A, H7230, H9160A, *H91EOC

FOCUS: restoration of brook valley meadows and forests, stimulation of peat forming processes and decrease of management costs.

In Western Europe man has influenced brook valleys and its biodiversity for centuries, by draining the marshes and by mowing the meadows. Particularly during the second part of the 20th century, land consolidation projects resulted in further drainage, and intensification of land use. This led to a severe loss in biodiversity in the brook valleys and also to loss of landscape elements like hedgerows and windbreaks.

The Reestdal, a typical Dutch brook valley.
photo: Groene Zoden Fotografie

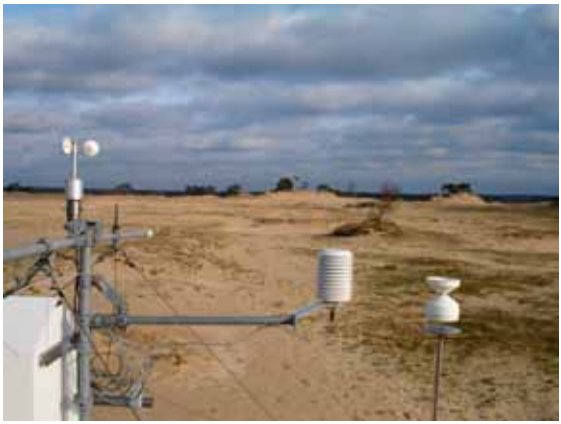
Dry Sandy Areas

CONTACT: W. van Heusden (secretary) - w.r.m.vheusden@dlg.nl

IMPORTANT HABITAT TYPES: H2310, H2320, H2330, H3110, H3130, H3160, H4010A, H4030, H5130, *H6230, H6410, H7110B, H7150, H9120, H9160A, H9190, *H91D0

FOCUS: restoration and development of relatively nutrient-poor ecosystems, both on habitats and landscape scale.

This type of landscape includes dry sand heathlands, shifting sands and forests with moderate to low nutrient levels (mostly dominated by Quercus and Betula sp.). The ecosystems of this landscape often overlap with those studied by the Expert Team Wet Sandy Areas. In the past, this landscape has been affected by cultivation of the most fertile parts, resulting in a large loss in biodiversity and decline of characteristic gradients.



In the Netherlands only 1.250 ha of shifting sands are left. Four years of extensive OBN-research resulted in a set of effective restoration and management measures and a handy brochure with guidelines for planning and monitoring of shifting sand management.
photo: Michel Riksen

Dunes and Coastal Areas

CONTACT: J. van Roon (secretary) - j.roon@staatsbosbeheer.nl

IMPORTANT HABITAT types: H1110A, H1110B, H1130, H1140A, H1140B, H1160, H1310A, H1310B, H1320, H1330A, H1330B, H2110, H2120, *H2130A, H2130B, *H2130B, *H2130C, *H2140A, *H2140B, *H2150, H2160, H2170, H2180A, H2180B, H2180C, H2190A, H2190B, H2190C, H2190D, H3260A, *H6230, H6410, H6430B, H7210

FOCUS: nature restoration, impact of coastal sand nourishment, hydrological mechanisms in dune areas and salt marshes, grass encroachment in dune areas, impact of grazing on flora and fauna and on dry dunes ecosystems.

This landscape is the most dynamic and varied landscape in the Netherlands. It ranges from dry to wet, from salt to fresh, from calcareous to lime deficient, and from dynamic to stable habitats, and includes many gradients in between. Human impacts mostly consist of coastal safety aspects, drinking water production, and recreation, which all set specific preconditions for nature management.

Field symposium in the dunes of Oost-Duinkerken (Belgium), together with Flemish colleagues.
photo: Bas Arens

In 2011 three new research proposals were formulated for the Dutch salt marshes: rejuvenation in combination with coastal defence, reversing of the currently rather stable dynamics of the Dutch Wadden Sea islands, and research of flora and fauna of man-made, inland salt marshes.
photo: Alma de Groot

Colline Landscapes

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IMPORTANT HABITAT TYPES: H3260A, *H6110, *H6130, *H6210, *H6230, H6430C, H6510A, *H7220, H7230, H9110, H9120, H9160B, *H91E0C

FOCUS: landscape restoration, management of calcareous grasslands, restoration of roadside flora.

Within this landscape OBN-research is being focussed on hill slope forests and calcareous grasslands. In the Netherlands, both habitats are rare and limited to the southern part of the country, where nature management is strongly affected by isolation of natural areas and habitats, and a high human population density.

Collection of eco-hydrological data in a Dutch hill slope marsh, in order to set up effective restoration and management measures.
photo: Hans de Mars

Rehabilitation of calcareous grasslands as part of the increase of habitat type *H6210 in the Netherlands. The rehabilitation was implemented, based on recommendations of an expert team that studied survival strategies of typical plant species and related fauna, such as ground beetles.
photo: Toos van Noordwijk

Fen and Sea Clay Landscapes

CONTACT: R. de Ridder (secretary) - r.p.dridder@dlg.nl

IMPORTANT HABITAT TYPES: H3140, H3150, H4010B, H6410, H6430B, H6510B, H7140A, H7140B, *H7120, *H91D0

FOCUS: integrated water management, development of more dynamic hydrological systems and of man-made nature in the sea clay landscape, resalination of lakes and marshes.

Part of this landscape is situated below sea level. It mostly originates from intensive peat digging and partly also from long term clay deposition by large rivers and the sea. Therefore, this landscape is influenced by fresh to brackish ground and surface water and consists of a large variety of soil types with many transitional stages in between. Building of dikes, as well as land reclamation, and land consolidation projects put a strong curb on the originally dynamic processes and the corresponding high biodiversity.

OBN-research on restoration and management of brackish lakes and marshes. These once common habitats in the western part of The Netherlands are now rare. The Netherlands do have an international responsibility in maintaining and increasing the still existing relics of both habitat types.
photo: Gijs van Dijk

Laboratory analyses of field samples.
photo: Ivan Mettrop

Wet Sandy Areas

CONTACT: C. Geujen (secretary) - c.geujen@natuurmonumenten.nl

IMPORTANT HABITAT types: H3160, H4010A, *H6230, H6410, *H7110A, H7110B, H7120, *H7120, *H91D0

FOCUS: restoration of ecosystems on landscape scale by restoring processes on landscape levels (more natural hydrological systems, stimulation of dispersal processes), review of restoration measures.

This landscape includes wet and moist woodlands and heaths, species-rich Nardus grasslands, dystrophic ponds and (degraded) raised bogs. The ecosystems of this landscape type are strongly interrelated with those of the Dry Sandy Areas and the Brook Valley landscapes. They have been strongly affected by interventions in the hydrological systems, whilst locally expansion of invasive species interferes with restoration measures.

Unfortunately, some restoration areas, like this section along the Vlootbeek, offer suitable reproduction habitat for pumpkinseed sunfishes. During wet periods this introduced species enters such streams via small ditches.
photo: Hein van Kleef

Pumpkinseed sunfish, an introduced species from North America.
photo: Frank Spikmans / RAVON

Riverine landscapes

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IMPORTANT HABITAT TYPES: H3150, H3260B, H3270, *H6120, H6410, H6430A, H6430B, H6430C, H6510A, H6510B, *H91E0A, *H91E0B, H91F0

FOCUS: research of morphodynamic processes, design and management of more natural riparian habitats, increase of faunal biodiversity with a focus on fish species.

Being a delta, the Netherlands has a special responsibility for the nature along its large rivers Rhine, Meuse, Waal, IJssel and Vecht. The Dutch river system has been affected by large-scale safety interventions, by which natural processes (like sedimentation, geomorphology, flooding, drainage and water quality) have been greatly altered.

The Expert Team Riverine landscapes recommended to lower breakwaters after extensive morphodynamic research on impacts of large-scale interventions in the river systems.
photo: Bart Makaske

Expert Group Fauna

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HABITATS: see habitat types of the Expert Teams

FOCUS: knowledge exchange, supervision and quality control of OBN-projects, listing of specific fauna problems, advising.

This expert group has been established to generate more attention for fauna aspects in nature management. The group supports the various expert teams during OBN research projects with focus on management problems related to fauna. The group also draws the attention to specific fauna problems, after which these will be included into research projects by the expert teams.

The field cricket is a typical species of heathlands and a vital link in the food chain. OBN research carried out by the Expert Team on Heathlands and Dry forests and supervised by the Expert Group Fauna showed that the reconstruction of old, small-scale agricultural fields could increase invertebrate biodiversity in heathlands with a strongly deteriorated biodiversity.
photo field orientation Expert Team on Fauna: Aat Barendregt
photo field cricket: Jap Smits

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The Bosschap, the Industrial Board for the Conservation of Forests and Nature, serves the interests of both employers and employees working in forestry and nature conservation. The Bosschap takes a strong interest in the contributions of Dutch woodlands and nature towards biodiversity, scenic value, and timber production.

Currently nearly 2000 owners of at least 5 hectares of woodland and/or nature (in total representing 300.000 hectares of woodland and 200.000 hectares of nature), and about 360 forest contracters with an annual turnover of at least € 11.345 (total annual turnover € 42 million) are being united by the Bosschap. Owners include the National Forest Service, private enterprises, local authorities (municipalities), the Ministry of Defence, drinking water companies, water boards, and nature management organisations.

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