



The Biesbosch, always in motion

The Biesbosch National Park is a green maze of several rivers, islands and a vast network of narrow and wide creeks. The area is one of the largest, valuable natural areas in the Netherlands. What's more, it is one of the few remaining fresh-water tidal areas in Europe. The Nieuwe Merwede canal divides the National Park equally between the provinces of Noord-Brabant and Zuid-Holland. The part in Noord-Brabant is called the Brabantse Biesbosch. The part in Zuid-Holland is divided into the Sliedrechtse Biesbosch and the Dordtse Biesbosch. The National Park covers an area of approximately 9,000 hectares.

The vegetation mainly consists of willow-woods that developed out of the willow-shoots of former withy-beds due to decades of neglect. These marshy woods alternate with grasslands and reed-lands that have run wild with weeds.

The plants and animals which existed before 1970 were all typical of a dynamic fresh-water tidal environment. The tidal influence of about two metres was reduced significantly in 1970 after closing the open sea connection of the Haringvliet. Of course this had its effects on the flora and fauna. Certain plants and animals disappeared while others took their place. It was a drastic development that forced nature to adapt. The environmental change in 1970, started a transitional period towards a new natural balance. This transition continues to this day. A new natural balance is not established in just a few decades.

In certain areas of the Biesbosch, nature is managed by as little human interference as possible. In the long term, these areas will probably develop into marshy woodlands, which is the type of woods that used to cover the wet peat areas in the western part of the Netherlands in the past.

The Biesbosch has always been an important area for birds to rest, forage and breed. This watery area is of such international importance to waterfowl and waders that a large area, the Brabantse Biesbosch has been officially recognised as a 'Wetland'. This high natural value is confirmed by other European agreements like the Habitats Directive and the Birds Directive.

Cultural history

The area knew many traditional forms of land use, like withy-beds and reed-lands, agriculture, hunting and fishing. Remnants of those days are still there, like the so called 'salmon hut', huts of willow workers and farm workers, duck decoys and the quays and grass dikes with their characteristic pools. Boundary marker trees of former terrain boundaries are also still to be seen in various places.



Origin of the landscape

The origin of the Biesbosch as a watery area can be traced back to the St. Elisabeth's Flood of 1421. This flood disaster engulfed 16 villages. The agricultural area of the Groote Waard or Zuidhollandse Waard changed overnight into an inland sea that stretched all the way from Dordrecht in the northwest to Geertruidenberg in the southeast. Since then, the tides have been able to enter from the sea without any obstruction



so banks and pools have developed. The Maas and Rhine rivers carried an enormous amount of sand and silt from upstream. Their sediments were deposited at the turn of the tide in the areas where the tidewater met and mixed with the river water. On the emerging sandbanks the first vegetation appeared: rushes followed by reed. It made the area interesting for the reed and rush culture. The abundance of rushes gave this new area its name of 'Bies-bosch' which means 'Rush-woods'. As the land rose, reed disappeared and willows began to grow. For the withy-beds, willows were planted on a large scale. Other means of making a living became possible like duck hunting with duck decoys, the manufacturing of willow-hoops for wooden barrels, agriculture and fishing. Around the year 1550, the first land reclamations took place. Around 1850, two thirds of the shallow inland sea that was created in 1421 had been reclaimed and was used for agriculture. Shortly

afterwards, from 1850 to 1870 the Nieuwe Merwede canal was dug to protect the Alblasserwaard polders from flooding. This divided the Biesbosch into two parts. From 1925 to 1927, the Biesbosch Polder was developed and made suitable for agriculture. After World War II, houses and factories were built in the western part of the Sliedrechtse Biesbosch. A large part of the Brabantse Biesbosch was made suitable for agriculture and for the supply of drinking water. After 1950 the Biesbosch was discovered as a recreational area. After the flood disaster of 1953 it was decided to close most of the sea arms in the province of Zeeland (the Delta Works Project). In 1969 the Volkerak sea arm was closed off followed by the Haringvliet in 1970. The tidal movement of 2 metres was reduced significantly by the closing of the Haringvliet Dam. Today, in large areas of The Biesbosch National Park shallow lagoons are developing.

Value and threats

The value of the Biesbosch as a natural area was recognised at an early stage. From the 1950s onwards, the State Forest Service, Staatsbosbeheer (SBB) bought

parts of the Biesbosch to preserve the natural environment as much as possible and to protect it from exploitation and other undesirable use.

Some developments however could not be stopped and parts of the Biesbosch were given up for other public interests. Three large drinking-water reservoirs were constructed after 1970. With the use of cleaner water of the Maas river the quality of the drinking water in Rotterdam has been improved.

Still, there is a large and valuable area left. What is more, the Biesbosch National Park is an area with an ecosystem that has become very rare in Europe, namely the fresh-water tidal area.

Nowadays the area faces new threats, such as soil and water pollution, yacht-basin enlargements, urban expansion, disturbance by certain types of water recreation (like speed boats and jet ski's) and plans for exploitation of natural gas reserves. For several of these threats there are no ready-made solutions available or they cost a lot more than the National Park's budget can carry. The National Park status though offers possibilities to find solutions.



Management

The National Park management is aimed simultaneously at the preservation or further development of the natural value and at the solution or reduction of threats that arise.

The nature management in the Biesbosch National Park and especially within the nature core areas is first and foremost aimed at letting the area develop itself in the most natural way possible.

Sometimes some human guidance or adjustment will be needed of course, but in principle nature is left to itself.

Tides

To support the characteristics of the fresh-water tidal area as much as possible plans have been developed by Ministry of Transport, Public Works and Water Management to adjust the drainage regime for the Haringvliet sluices. Plans to set the sluices ajar are in an advanced stage and will be carried out probably in 2008. This new drainage policy will lead to a

fundamental change for the Haringvliet, where in the area near the dam a zone of brackish water will develop. For the Biesbosch this plan will not lead to larger tidal differences. In the future however, the tidal differences may increase substantially if the drainage sluices are permanently opened a little further as is indicated in the plans for a 'tamed tide'.

Creating wetlands

In the autumn the workers of Staatsbosbeheer flood some grassland polders to turn them into wetlands. They



let the water in by operating culverts and windmills. Trenches and shallows fill with water and the higher parts only just remain dry.

Such soaking wet grounds have a magnetic attraction to wintering waterfowl.

Thousands of geese and ducks like white fronted geese, shoveler, pintail, gadwall and teal stay the night on such grounds.

Man thus deliberately turns some polders into wetlands although this can also happen in a natural way, due to excessive rainfall or extreme water levels that can cause polders to flood.

Grazing

In the Biesbosch Staatsbosbeheer also uses cattle to help manage terrains. All these animals need to be transported over water. They are actually used as natural mowing-machines.

Depending on the required result, the number of animals per hectare is determined as well as the species to be

used, like cows, horses or sheep. Every kind of animal has its own grazing pattern. Next to their normal menu of grasses and herbs, cows are also interested in woody plants. It is due to their grazing that the polders and other terrains retain their characteristics of the open field. If no cattle were transported to these terrains they would be overgrown with bushes and trees and natural succession in vegetation would change the areas slowly into a forest. Because of the fluctuations in water levels in the Biesbosch, the cattle need to be brought back to the stable during the winter period.

New nature

Over the past few years all kinds of nature development projects have been carried out. Beautiful landscapes were created that turned out to have a great attraction for waterfowl. So far, over 900 hectares of new wetland

nature has been realised in for instance the Spiering Polders, and the Kort and Lang Ambacht and Maltha polders. In the coming years work will be done on creating a greater coherence between all parts of the Biesbosch National Park. New projects will be created in the polder areas of the Noordwaard and the Zuiderklip.

The green centres

There are three large nature areas in the Biesbosch National Park which are hardly accessible for visitors. Here it is quiet, which is of importance to animals that are easily disturbed and that also need a large area to live in. For example the osprey, the spoonbill and the night heron find refuge here.

Water and soil pollution

The chemical pollution of silt and water is a serious problem. Most chemicals are coming in from abroad through the big rivers. This problem needs to be tackled at the



source by means of international agreements.

Fortunately the water quality of the Rhine has improved a lot over the past years, leading to better quality silt sediments.

Several plans for soil improvement of the river beds already exist.

Pollution can have other causes too. In boat maintenance the use of environmentally unfriendly materials is still seen and also the wastewater ends up in the surface water. This kind of pollution is being continually fought against.

Recreation

The National Park also has an important recreational function. Certain creeks will stay navigable and recreational facilities have been created. Quiet forms of recreation that are nature-oriented will be favoured above others types of recreation. Because the recreation had to make way for the development of nature zones, not open to the public, in the Biesbosch National Park, the Aakvlaai area was rearranged as compensation. It is a kind of Biesbosch on a small scale.

An active promotion of the Biesbosch as a recreation area is avoided to prevent a further increase of visitors to the Biesbosch.

The number of sightseeing boats is regulated by permits. Some of the shipping companies use environmentally friendly electric 'whisper boats' for their trips.

Hunting

According to international guidelines hunting is not allowed in national parks unless this is necessary from the viewpoint of nature conservation or to prevent damage to surrounding farmlands. Owners and managers of the Biesbosch National Park have committed themselves to these guidelines. Hunting permits are still valid in several areas adjacent to the National Park, but these will not be renewed when they expire.



Types of landscape with their flora and fauna

The most characteristic plants that occur in the Biesbosch grow in a moist to wet environment. The triangular club-rush is very special for this area (*Scirpus triquetus*) and a special variety of the marsh marigold (*Caltha palustris* var. *araneosa*), which is larger than the marsh marigold, can be found nowhere else in the world.

The Biesbosch marsh marigold is called the 'spider-marigold' because it forms spider-like root outgrowths at its nodules



after it has flowered. This highly specialised form of vegetative reproduction is a way of adapting to the tidal environment.

Since the closing of the Haringvliet dam in 1970 the mammals have increased too, like the roe deer and the last years the fox. The rare root vole is present in the Biesbosch just as the water shrew. Both species of mice live in wetlands and their populations seem to be stable nowadays. The increase in small mammals also brought an increase in birds of prey.

In the area we also find waterfowl, reed warblers and meadow birds. In good years some 15 to 20 pairs of kingfishers and 1,500 to 2,000 pairs of bluethroats are breeding.

Because of the nature development of new wetlands the great white heron and the little egret have become familiar elements in the fauna of the Biesbosch today. Here and there the bittern also breeds.

The lush vegetation brings about a rich world of insects, with for example beetles,

dragonflies, grasshoppers and many butterflies and moths. For instance, over 300 species of moths were found. The swollen spire snail is present in the Sliedrechtse Biesbosch due to the relatively large tidal movement there.

The former abundance of fish species has disappeared. The Delta Works and especially the Haringvliet sluices form a barrier for typical migratory river fishes like salmon, sea trout, twaite shad and European smelt. The total number of fish has increased in recent years; the river bream does extremely well.



Tidal willow woods and withy-beds

The largest part of the Biesbosch consists of willow woods and tidal willow woods which have developed out of neglected withy-beds. Withy-beds on areas outside the dikes are already mentioned in documents dating back as far as 1560. For centuries there was willow cultivation in the Biesbosch. The branches were cut or chopped once every 1 to 4 years. Around 40 different willow varieties were used. Depending on the thickness and willow



variety the wood was used for basketwork or binding bundles of branches or reed, for handles and beanpoles or as fascine for water engineering works.

From the end of the 1950s the exploitation of withy-beds diminished. The competition with synthetic materials such as nylon and plastic became too big. The work in the withy-beds was hard and it paid little. Over time, withy-beds that are not cultivated anymore develop into lush willow woods with topsy-turvy trees. In such woods the seeds of plants other than willow hardly come up. The raging storm of October 2002 has drastically created open places from which other species of trees and plants profit.

Willow woods are an important place for several rare species of moss and they offer a good habitat for all kinds of woodland birds like the robin, blackcap, lesser and great spotted woodpecker, short-toed treecreeper, hobby and sparrow hawk. Buzzard and goshawk breed in the

Biesbosch every year nowadays, as do golden oriole and nightingale. All sorts of plants can be found. Next to the many stinging-nettles there is also touch-me-not-balsam, spotted jewel-weed, great willow-herb, enchanter's nightshade and purple loosestrife. The gigantic and abundant Himalayan or Indian balsam creates a real jungle and the pink flowers





have a very characteristic sweet smell. When the willow forests mature a further increase in the variety of species can be expected. Some withy-beds are still maintained by the Staatsbosbeheer, just as they were in the old days, to keep the cultural history of the willow workers or 'withy-owls', as they were called, alive. Huts of willow workers are still to be seen in several places in the area.

Open water and mud flats

The open water in the Biesbosch is a resting-place for water birds. The mud flats disappear under water when the tide comes in, but at low tide they are important foraging places for ducks and waders like lapwing, snipe, greenshank and common sandpiper.

At high tide, these birds gather together on the surrounding grasslands that act then as a kind of high-water refuge. These places are mainly to be found in the Sliedrechtse Biesbosch, due to the larger

tidal difference that still remains there. The tidal difference is still substantial with some 60 to 70 centimetres twice every 24 hours. From the tidal difference in the Dordtse and Brabantse Biesbosch there is only 20 to 30 centimetres left, due to the longer route the water has to travel to reach these areas. On the higher parts of those mud flats, that are flooded twice a day, we find plants like reed, fan ragwort or bird's tongue, bulrush and meadow sweet.

Reed and rushes

The reed and rush culture used to be an



important means of existence that ceased to exist when the tides fell away. When reed-marshes and rush-flats are not flooded regularly, they run wild with all kinds of plants, like valerian, hedge bindweed, great willow-herb, bulrush and yellow iris.

As time goes by it becomes a more and more attractive habitat for all kinds of water-birds and birds of marshlands. On several reed-lands the reed is still cut every year.

Grasslands

The grasslands in the Biesbosch are the property of Staatsbosbeheer. This State Forest Service leases them to local farmers with the proviso that there will be no use of fertilisers and herbicides. Hay lands in the Sliedrechtse Biesbosch have become very flowery due to this policy, for instance in Kraaiennest polder, parts of the Louw Simonswaard and Engelbrechtsplekske polders and Hengstpolder.

In summer all kinds of rare wild plants are flowering like yellow bedstraw, oxeye daisy,

great burnet, brown knapweed and greater burnet saxifrage.

The sandy character of the river dunes of the Kop van den Oude Wiel makes it a place for real botanical highlights, such as redflower broomrape, meadow saxifrage, lesser meadow-rue, fairy flax, field scabious and large wild thyme.

As a result of natural barriers such as flooding and the fact that they are difficult to get to, intensified cultivation of farmland has

not affected the terrains mentioned above to the same extent as we have seen in the rest of the Netherlands. Several hay lands for example can only be reached over water. During winter and spring, the rivers Rhine and Maas can provide high water levels that cause temporary flooding of many polders. This attracts many birds, especially white-fronted geese, barnacle geese and all kinds of ducks, like teal, wigeon, gadwall, shoveler and pintail.



Reintroduction of the beaver

In 1825 the last beaver in the Netherlands was clubbed to death near the river IJssel. In 1988, 5 beaver couples from the Elbe basin in Germany were released in the Biesbosch as an experiment after several extensive studies. They had small radio transmitters implanted that allowed following them closely for 5 years. The reintroduction is a success. By the end of 1993 there were already 42 beavers of which 25 were born in the Biesbosch. Ten years later there are more than 60 beaver lodges in the area. Beavers are vegetarians that have a preference for tree-bark of branches and twigs. To get to it they are prepared to cut down entire trees. That is precisely why they fulfil such a useful role in nature management in the Biesbosch. By cutting

down a tree every now and then space is created for something else to grow. They also like to eat the stinging-nettles that

thrive in the willow woods of the neglected withy-beds. The beaver has some 50 to 60 plants on its menu.



Possibilities for visitors

The Biesbosch National Park has two visitor centres. Here you can discover what there is to see in the area.

In the village of Drimmelen in the province Noord-Brabant you will find the visitor centre Biesbosch Bezoekerscentrum

Drimmelen. The permanent exhibition has as its theme 'The Biesbosch, the Richest place in the Netherlands'.

On the outskirts of the city of Dordrecht in the province Zuid-Holland you will find the visitor centre Biesboschcentrum Dordrecht. There the permanent exhibition has as its theme 'The Biesbosch, a jungle in Holland'.

Both visitor centres have temporary exhibitions with nature related themes on a regular basis. You can also find out about the recreational facilities of the Biesbosch. In the geographic centre of the Biesbosch you will find the Biesbosch Museum, which is mainly dedicated to the cultural history of the area. The Biesbosch is an area for nature lovers and water sport enthusiasts especially.





In order to preserve peace and tranquillity, the use of waterways and creeks is bound by regulations. Therefore, if you want to go out into the Biesbosch by boat on your own, a special navigation map is essential. This map is available from the visitor centres. It shows you where you can moor your boat, and where you can find canoeing routes and footpaths.

For addresses, opening hours and websites of the visitor centres and the museum, please look at the back of this brochure or visit the website of the Biesbosch National Park at www.biesbosch.org

National Parks

A national park is an internationally recognised concept. All over the world national parks are being founded. In the Netherlands they started in 1980. In this country national parks are nature areas of at least 1,000 hectares, (10 square kilometres) with special natural value. The main goal in the foundation of national

parks is the protection of large natural areas and landscapes and the flora and fauna in these areas. Important sub-goals are nature education, nature-oriented recreation and scientific research. The Dutch Ministry of Agriculture, Nature and Food Quality bears a large part of the costs of management, maintenance, information and education of the national parks. This creates room for experimental forms of nature management and the development of a coherent education program in each national park. Thousands of families and classes visit the national parks each year and get acquainted with the area involved. With regard to nature-oriented recreation there is always the search for a balance between the interests of nature and its

visitors. The national parks offer their visitors a varied selection of valuable and typical Dutch natural areas that are also of international importance. Through zoning, creation of footpaths and boating routes and by offering guided excursions visitors are guided in such a way that negative effects are minimised. The visitor centres inform visitors about the effects of certain behaviour and through educational activities they try and teach the visitors what role they themselves play in nature conservation.



The Biesbosch National Park

In 1987 the proposition of the Biesbosch as a national park was put forward. As a result of this a consultative body was installed in which all those directly involved, such as owners, managers and administrators, are represented.

The main task of this consultative body was to make a national park management plan with sufficient guarantees for sustainable management and conservation of the Biesbosch, to meet the requirements for national parks.

In 1993 agreement was reached on the plan and on 10 March 1994 the Biesbosch was assigned the official status of National Park.

You may say that an area that has the status of national park, has a natural value and is worthwhile visiting.



Information about the Biesbosch National Park

For further and up to date information, please see our website www.biesbosch.org.

The three centres mentioned below give information on the Biesbosch with their exhibitions and other public activities.

Biesboschcentre Dordrecht

Baanhoekweg 53, 3313 LP Dordrecht

Tel. 078 630 53 53

Mail: info@biesbosch.org

Site: www.biesbosch.org

Biesbosch Visitorcentre Drimmelen

Biesboschweg 4, 4924 BB Drimmelen

Tel. 0162 68 22 33

Mail: biesbosch@staatsbosbeheer.nl

Site: www.staatsbosbeheer.nl

www.biesbosch.org

Biesboschmuseum

Hilweg 2, 4251 MT Werkendam

Tel. 0183 50 40 09

Mail: info@bbmuseum.nl

Site: www.biesboschmuseum.nl

For general information about the organisation en policy of the National Park, please contact:

Secretariaat Nationaal Park

De Biesbosch

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Information about nature management:

Staatsbosbeheer

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