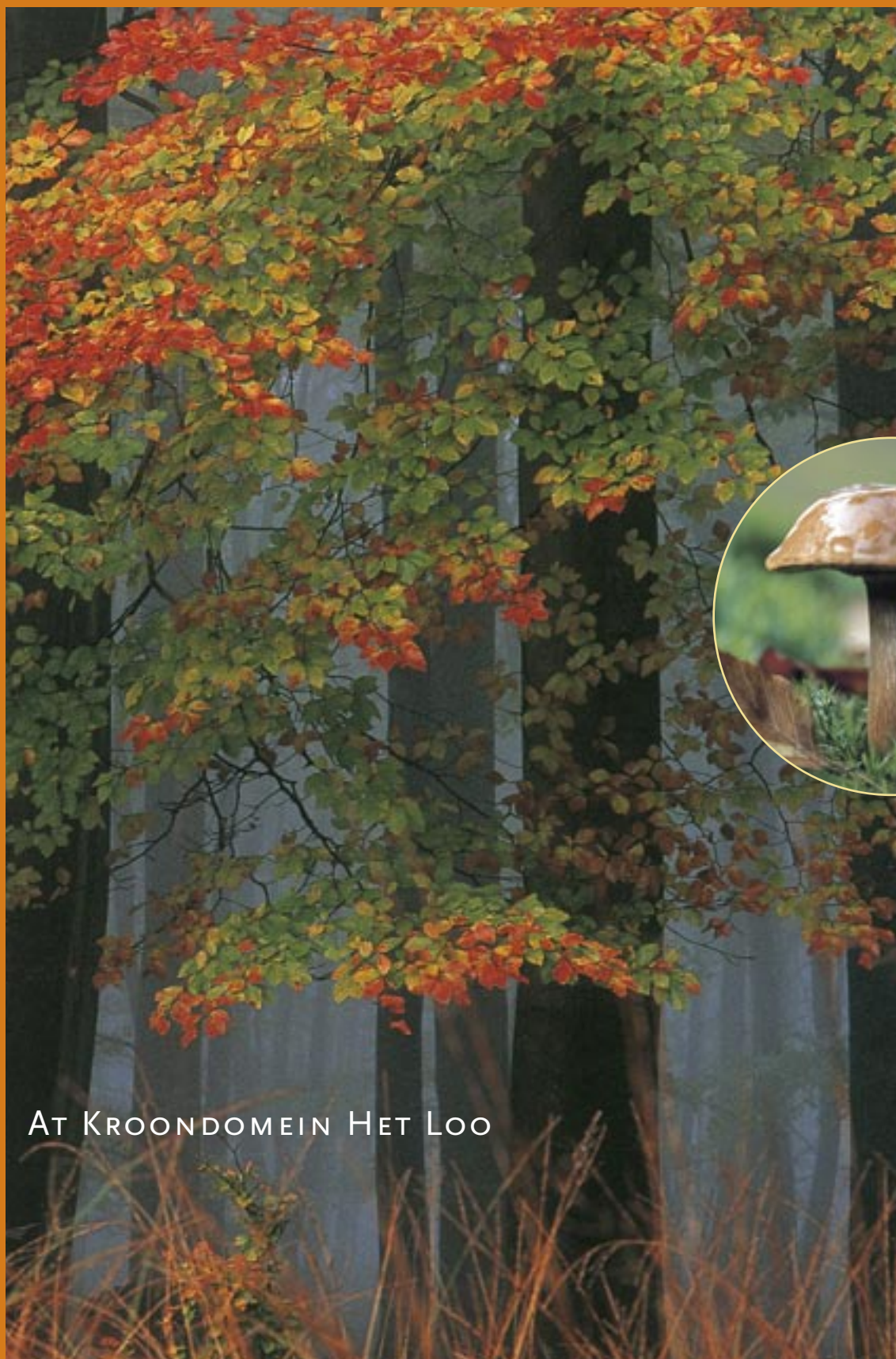
Close to nature
forest management



At Kroondomein Het Loo

Kroondomein Het Loo

Kroondomein Het Loo (Het Loo Crownlands) consists of extensive woodland and heather areas and a large park. The area has been associated with the House of Orange-Nassau for more than 300 years. The long-standing relationship with the House of Orange has shaped Kroondomein Het Loo into its current form: an estate of over 10,000 hectares with a rich cultural heritage, great biological diversity and landscape of outstanding beauty. It has a unique position, not only in the Veluwe area, but also in the Netherlands as a whole.

Kroondomein Het Loo includes the Paleispark (Palace Park) and the Koninklijke Houtvesterij (Royal Forestry District), both of which consist largely of forest. In the Paleispark the forest is intersected by paths and streams and interspersed with small open spaces of heather. The woodland in the Royal Forestry District is of a larger scale and is interspersed by extensive heather moorland.

Not all forests are the same

Forests have several functions. People visit them for their enjoyment; to walk or cycle through them. They provide a habitat for plants and animals and are also a source of wood. Forests also have a large influence on water levels, climate and the atmosphere.

Kroondomein Het Loo has formulated criteria for its forest management and has set out its plans for the future in a management plan. This includes a special method of forest management: ‘close to nature forest management’. This brochure describes in brief these plans and the method used.

Past, present and future

The forest in the past: plantations

Until about a thousand years ago the whole of the Veluwe was covered with deciduous forest. Much of this was felled in the Middle Ages, not only to clear land for agriculture but also because wood was needed for smelting iron ore, which was mined on the Veluwe during that period. Later on sheep were kept in the area, and as a result the forest was unable to restore itself and heather gradually took over. As heather turf was removed the soil became poorer in quality.

From the end of the 19th century the heather areas were replanted with Scots pine, a species that does well on poor soil. The trees were planted in plantations which were then subsequently harvested in their entirety. The ‘new’ Veluwe forest that emerged was a patchwork of fields of even-aged conifer stands. It was uniform and boring to look at, not an attractive habitat for plants and animals, and expensive to manage.

CLASSIC FOREST MANAGEMENT

The forest in the present: in transition

At the beginning of the 1980s Kroondomein Het Loo decided to develop the forest into a mosaic of mature forest ecosystems in their own right. These are forest systems that consist of tree species that occur naturally in the area, where natural processes are given freedom and where all development stages of natural woodland are present. The first step was to stop harvesting whole stands of trees at the same time and to apply continuous thinning instead: a tree is only felled if its ‘neighbours’ stand to benefit, or to give space to young trees that have taken root spontaneously. This results in an increasing variety of trees of different species and ages in the forest. If the forester has to choose, he is more likely to fell a conifer than a deciduous tree. In this way the conifer forest is gradually transformed into deciduous forest, the natural type of forest on the Veluwe.

By ensuring that less volume timber is harvested than grows each year, trees are given the chance to grow large and reach a greater age, and some will die a natural death of varying causes.
As a result, an increasing amount of dead wood also accumulates in the forest, and this offers living space to all sorts of organisms. The forest therefore becomes not only much more varied but also much more natural.

The forest in the future: mature ecosystems

By giving room to natural processes and naturally occurring tree species, the forest starts to look more varied and as nature intended it. Storms, snow and disease cause trees to fall, break down or die. This creates room for young trees to germinate and grow. A varied structure makes the forest ecologically and physically robust.
All organisms that belong in the forest can survive and large-scale forest landscapes emerge.

The idea is to develop Kroondomein Het Loo into one big (semi-)natural forest area: a landscape of outstanding beauty with a rich diversity of plants and animals and that can supply enough timber to ensure a continuous source of income.

DEVELOPMENT TO A MOSAIC OF FOREST ECOSYSTEMS

Management follows nature

A forester has to make choices, which are based on the different functions of forests:

- Forest provides the basis for a wide diversity of plants and animals: the **nature function***
- Forest protects the soil and influences the climate: the **protection function***
- Visitors experience pleasure in a forest and appreciate its beauty: the **recreation function***
- Forest is a source of timber: the **production function***.

Kroondomein Het Loo wants to develop these functions in as balanced a way as possible, so that they all flourish.

Nature receives priority

It is not possible to give equal weight to all functions in all locations. It is not even necessary. We consider carefully which woodland function will receive priority for each location. Top priority is given to the functions that are vulnerable and that cannot be renewed or are difficult to renew.

Flora and fauna species are the result of thousands of years of evolution. To ensure their survival they must have a sufficient area of their specific habitat. We create this by designating parts of the forest as reserve and ensuring that most of the forest consists of naturally occurring tree species: native trees. Only when the nature function has been well established can we decide where and how much timber to harvest.

The nature function
Forest is home to a large number of organisms. The more natural a forest, the greater the chance that the species that belong naturally can actually find their specific habitat.

The protection function
Where forests are maintained the soil is protected and this has a beneficial effect on the climate.

The recreation function
By letting nature take its course in the forest and harvesting to mimic natural loss the landscape retains its beauty.

The production function
Trees produce timber. Timber production benefits from a varied forest with mixed tree species and ages. The more tree species there are, the better market demands can be met.

Close to nature forest management

In the special kind of forest management developed at Kroondomein Het Loo the natural processes guide the management of the forest: nature dictates how the forest will come to look, how it becomes a habitat for flora and fauna, and which trees and how many can be harvested. The forester does not force the forest to do what he wants, but accepts how it is shaped by nature. Timber harvesting is carefully planned and only done on a small scale so that it has minimal impact on the wildlife and the landscape. We call this 'close to nature forest management'. Nature based forest management results in a mosaic of whole or partial natural forest ecosystems.

Three types of forest

To make sure the forest functions are optimised, the forest in Kroondomein Het Loo is divided into three types:

- Forest consisting of native tree species, where no harvesting takes place: forest reserves
- Forest consisting of native tree species, where limited harvesting takes place: native selection forest
- Forest containing native and exotic tree species where as much is harvested as grows: exotic selection forest.

Forest reserves

Native selection forest

Exotic selection forest

Forest reserves

To maximise the nature function, part of the forest has been designated a reserve where nature is left undisturbed. A reserve like this is especially important for plants and animals that are dependent on habitats where there is no additional disturbance from humans. There is already disturbance from natural causes, for example storm and inter-species competition. These are natural dynamics that we can do nothing about. By avoiding human disturbance, such as harvesting trees, trees have the greatest chance of growing old. This leads to a lot of dead wood, including thick dead wood that takes a long time to decompose.

If there is no human intervention different habitats arise, each of which offers a niche for specific organisms. Places arise where the forest cover remains closed for a long time, where summer sun never penetrates. It can remain cool and moist for decades in these spots, which are important for all kinds of ferns, mosses and fungi. Shade-tolerant trees have the best chance of regenerating in the forest: on the Veluwe these are the beeches. The forests that develop naturally in this area gradually become beech forests. Only if there is a severe storm do other, light-demanding, tree species get a chance, such as birch, oak and Scots pine.

Native selection forest

Most of the plant and animal species found in the forest are not dependent on the specific conditions found in a reserve, however. They find their habitat in one of the various different stages of development of the forest (where there are young, old and dead trees). Many types of organisms are therefore able to live in the forest. It is important that the forest is composed of trees that would occur there naturally, i.e. native trees. It makes no difference to the animals and plants, however, whether the conditions in which they live are the result of natural processes or human actions. If human interventions are done in such a way that all development stages of the natural forest remain present, then an intervention such as timber harvesting has little influence on the number of species of plants and animals. This can be achieved by selectively thinning out the forest. A tree is only felled if 'neighbours' can benefit from this, or to give space to young trees that have taken root spontaneously.

This type of harvesting is called selection felling. Less timber volume is felled than grows each year. This way some trees have the opportunity to grow old and sturdy, and some will eventually provide dead wood. Selective harvesting also makes it possible to adjust the composition of tree species. This is important as otherwise beech trees will naturally start to dominate. That is not always desirable as it limits choices for the future and, in addition, almost nothing grows underneath beech trees. As a result there is little to eat for deer and wild boar (apart from occasional beech nuts), nor for the organisms that live in and on the ground vegetation. 'Selective' harvesting gives oak, birch and Scots pine more chance of survival.

Exotic selection forest

Kroondomein Het Loo also has stands of exotic trees: species that did not originally belong in the Netherlands. An exotic stand does not necessarily exclude native animal and plant species. The latter can survive in these stands, but there are fewer species than in the native forest. Selective felling is also done in the exotic forest areas of Kroondomein Het Loo. Because the Douglas fir can stand more shade than other species and grows higher than all other trees it will dominate in this type of forest in the long run.

Consequences for timber harvest and game

Prudent harvesting

Timber harvesting is done differently for each type of forest. No timber is harvested at all in the forest reserves. In the native and exotic selection forests some timber is harvested, but on condition that it is done in a way that is appropriate to the natural development of the forest. For this reason we never fell more than one or a few trees at the same time in one place.

In the native selection forest we aim to maintain as natural as possible composition of tree species. The guiding principle is the transition of the prevailing conifer forest to deciduous forest of oak, birch and beech. In the exotic selection forest we try to retain the deciduous trees as much as possible as spontaneous development in this type of forest leads mainly to large numbers of Douglas fir.

Red deer and roe deer

We want the number of deciduous trees to increase because of their natural value. For the same reason we also want the forest to be populated with red deer and roe deer, but these herbivores eat tree buds and twigs. There are conflicting interests here: on the one hand the desire to 'restore' the forest to a more or less natural woodland from which timber can be harvested, and on the other hand the desire to have a game population that is as natural as possible. Kroondomein Het Loo's game management attempts to maintain a balance between a game density that is appropriate to the natural carrying capacity of the area and a density that matches the process of deciduous regeneration. It is therefore necessary to control game numbers.

Helping nature a little

The current forest is the result of plantation woodland created in the past, whose characteristics will be visible for many decades to come: uniform stands of even-aged trees. If we thin the forest in the normal way we will only slowly achieve our goal of a varied forest. To arrive at a mosaic of mature forest ecosystems we need to:

- create many development stages
- get rid of species and age uniformity of the trees
- increase the number of old and sturdy trees
- increase the amount of dead wood.

To create varied forest more quickly, Kroondomein Het Loo engages in active ecological restoration. The forest stands are not thinned everywhere at the same intensity, but in a heterogeneous manner. Deciduous trees that are present are given extra growing space so that variety increases within the stands as well.

Uniform young stands are thinned very irregularly and vigorously. This allows the remaining trees to grow strong more quickly and there is immediately room for future generations. As a result more natural patterns arise.

In this way Kroondomein Het Loo will eventually become one large area of (semi-)natural forest with a landscape of outstanding beauty, a rich diversity of plants and animals, and sufficient timber to ensure a continuous source of income.

A special forest

Kroondomein Het Loo was the first large area of forest in the Netherlands to receive certification in accordance with the Forest Stewardship Council (FSC) criteria. FSC is an independent international organisation representing the interests of good forest management. FSC has formulated criteria for good forest management. These cover biodiversity of the forest, a judicious amount of wood harvesting, labour conditions, the economics of forest use, environmental aspects and the way in which management and forest development are monitored.

Kroondomein Het Loo

You can find more information on Kroondomein Het Loo, including opening times and how to reach it on: www.kroondomeinhetloo.nl.

You can contact Kroondomein Het Loo by phone Monday to Friday between 9.00 and 17.00 on: +31 (0)55 521 97 09.