The Falkenberg Marteloscope

Field guide

Parc naturel régional des Vosges du Nord

Office National des Forêts

NATURA 2000

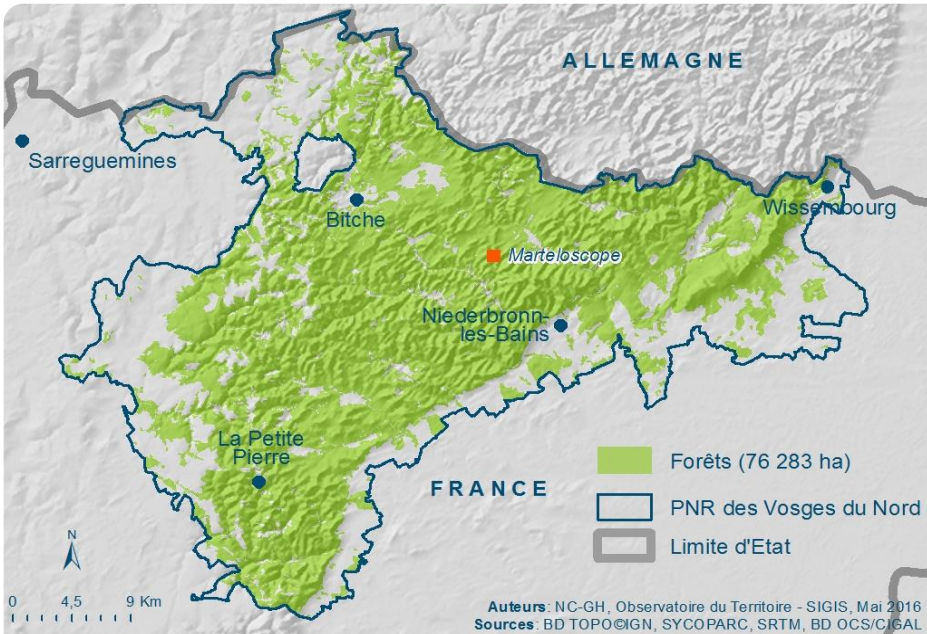
Réserve Naturelle ROCHERS ET TOURBIERES DU PAYS DE BITCHE

Forests of Vosges du Nord

The Falkenberg Marteloscope is located on state forest land in the heart of the Northern Vosges Regional Nature Park (French part of the *Transboundary Biosphere Reserve Vosges du Nord – Pfälzerwald*). 60 %, or 76,283 ha of the park, are covered by forest. The forest is composed of 58 % broadleaves and 42 % conifers. Out of 30 tree species occurring, beech (*Fagus sylvatica*), Scots pine (*Pinus sylvestris*) and oak (*Quercus petraea* and *Quercus robur*) are the most common. They amount to nearly 80 % of the standing volume, while Norway spruce (*Picea abies*) represents 16 %. Nearly all forests are high forests (90 %).

The average annual growth ranges between 4 and 5 m^3/ha/year of which 30 % is provided by beech and 17 % by oak. The annual growth of the forest is 300,000 – 380,000 m^3/year with an average standing volume of about 237 m^3/ha. Large diameter trees with a dbh above 47.5 cm constitute 35 % of the total volume and 61 % of the forests economic value. Nearly all trees with a dbh above 67.5 cm are either beech or oak.

The amount of standing deadwood with a diameter above 7.5 cm is 3m^3/ha while lying deadwood averages 24 m^3/ha. Most of the deadwood is currently below 30 cm in diameter. The annual economic return from timber production in Northern Vosges forests is 151 €/ha/year. Oak logs are the most important in terms production value (40 % of total).



.... in figures

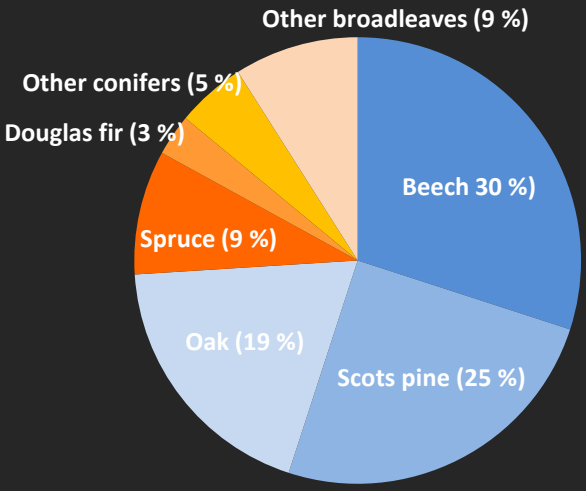
76,283 ha
Total forest area

4.0 – 5.0 m³/ha
Annual increment

237 m³/ha
Actual average stock

58 %
Broadleaves

42 %
Conifers



151 € / ha
is the annual timber production value

300,000 – 380,000 m³
is the annual increment measured over the total forest

Biodiversity concept

The Falkenberg Marteloscope is embedded in the *'Bitche County's Rocks and Mires National Nature Reserve'* (la Reserve Naturelle Nationale des rochers et tourbières du Pays de Bitche).

Protected forests

In this nature reserve peregrine falcons (and sometimes raven) nest during the first half of the year on a rocky plateau. During this time there is limited access to the surrounding forest area including the Marteloscope. The rocky plateaus harbour also a considerable number of rare herbaceous plants and have been a climatic refuge for Scots pine for millennia. The Falkenberg Marteloscope is located on the western slope of the plateau. It is dominated by older forest composed mainly of beech and sessile oak which are important in terms of quality timber. On the other they may also develop valuable tree microhabitats for many rare species.

The nature reserve is also part of the 6,000 ha Natura 2000 Special Protection Area *'Forêts, rochers et étangs du Pays de Bitche*'. Apart from the Peregrine Falcon, forest birds species targeted are Black-, Grey-headed- and Lesser-spotted woodpeckers, Boreal- and Pygmy owl and the European Honey Buzzard. Further forest species are Bechstein's-, Barbastelle-, the Greater mouse-eared bat and stag beetle.

One main conservation objective in the nature reserve is to increase forest naturalness. This is achieved by designating strictly protected areas and preserving or restoring forest composition and potential habitats in managed forests. Target is to select and preserve on average 4 habitat trees on each hectare. Standing deadwood is to be kept, if no eminent danger is expected for forest visitors. Other aims are to restrict the occurrence of non-native tree species, promote continuous forest cover and enhance structural diversity of stands from currently 11 % to 22 %. Further it is planned to increase the area of mature forest stands from currently 6 % to 12 %. Nature park plans, also target to make best commercial use of existing forest resources as long as those are in line with the long-term preservation goals of natural forest biodiversity. Therefore, tree species such as beech, Scots pine and oak are promoted while ensuring access to local timber markets.

1.1 %

Set-aside forest areas

60 %

of the Northern Vosges Regional Nature Park is covered by forest

864 ha

is total area of protected forest areas

3-6 / ha

Target for habitat trees

572 ha

of the forest are strictly protected

145 ha

are senescence forest on 112 patches

24 m^3 / ha

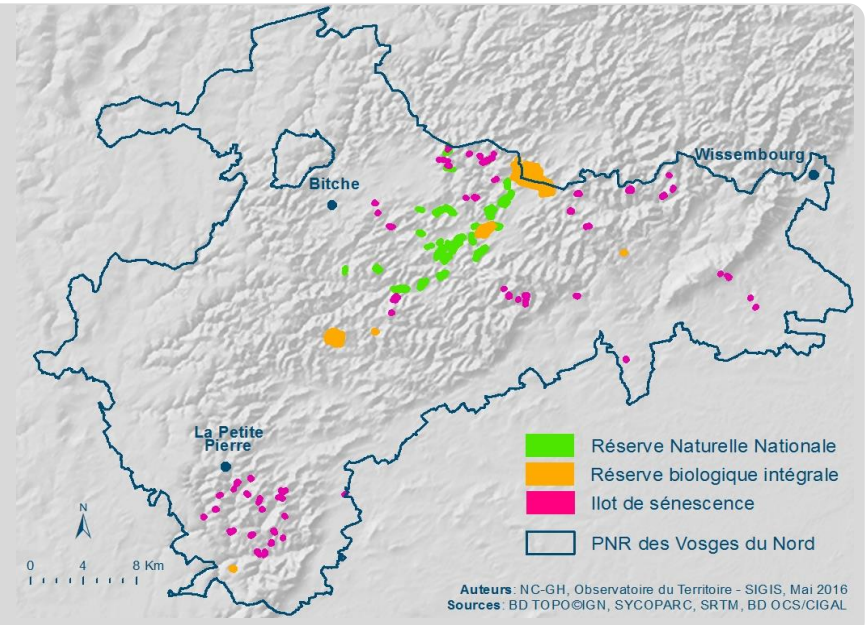
Lying deadwood

147 ha

are spontaneous dynamic forests (outside forest reserves)

3 m^3 / ha

Standing deadwood

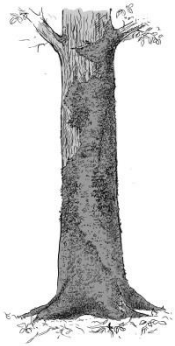


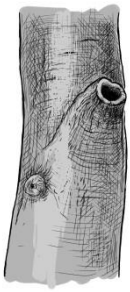
Habitat structures

Large quantities of deadwood and a high density of old microhabitat-bearing trees are characteristic elements of natural forests, especially of the old-growth phases. These phases are often absent or rare in managed forests, even in forests under close-to-nature management. Also in selective harvests and thinnings, 'defective' trees referring to these old-growth phases (hollow, dead and languishing trees) are often removed. Yet, an important share of forest biodiversity is strictly or primarily dependent on these elements for their survival, especially 'saproxylic' species, that is species depending on deadwood.

Most species dependent of old-growth-elements and phases have become threatened. Conservation of biodiversity in commercial forest stands is mainly a question of conservation of adequate amounts of deadwood and retention of such microhabitat structures

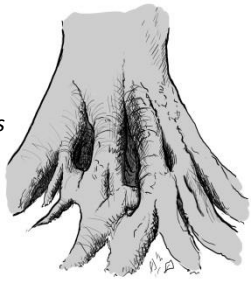
Bryophyte

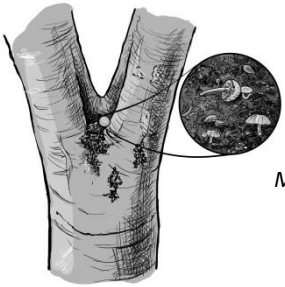




Branch cavities

Root buttress cavities





Microsoil

….and biodiversity

Falco peregrinus

Picus canus

Barbastella barbastellus

Dicranum viride

Lucanus cervus

Oudemansiella mucida

Site conditions

Altitude:	**380 m.a.s.l.**
Forest ecological region:	**Grande Région Ecologique D: Vosges**
Soil	**Brown acid to ochre podzolic soil**
Site description:	**Rocky and overall sandy**
Mean annual temperature:	**10.5 °C**
Annual precipitation:	**850 mm**
Natural forest community:	***Luzulo - Fagetum***

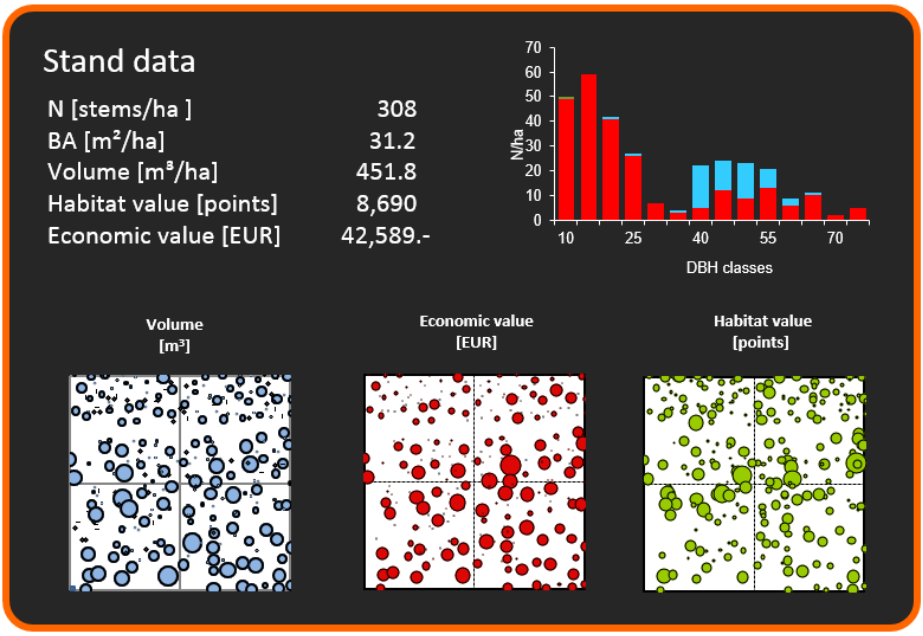
Luzulo-Fagetum beech forests occur mostly in continental areas, on acid and nutrient-poor soils. The optimal distribution of *Luzulo-Fagetum* beech forests occurs in continental rainfall-rich regions. This distribution is limited by soil conditions with the lack of oxygen during the growing period being due to soil wetness or instability.

The forest canopy is dominated by *Fagus sylvatica* with *Quercus petraea*. The understory of this forest type is sparse and floral diversity rather poor.

Species*: Luzula luzuloides, Carex pillulifera, Pteridium aquilinum, Dicranum scopqrium, Polytrichastrum formosum*

Stand characteristics

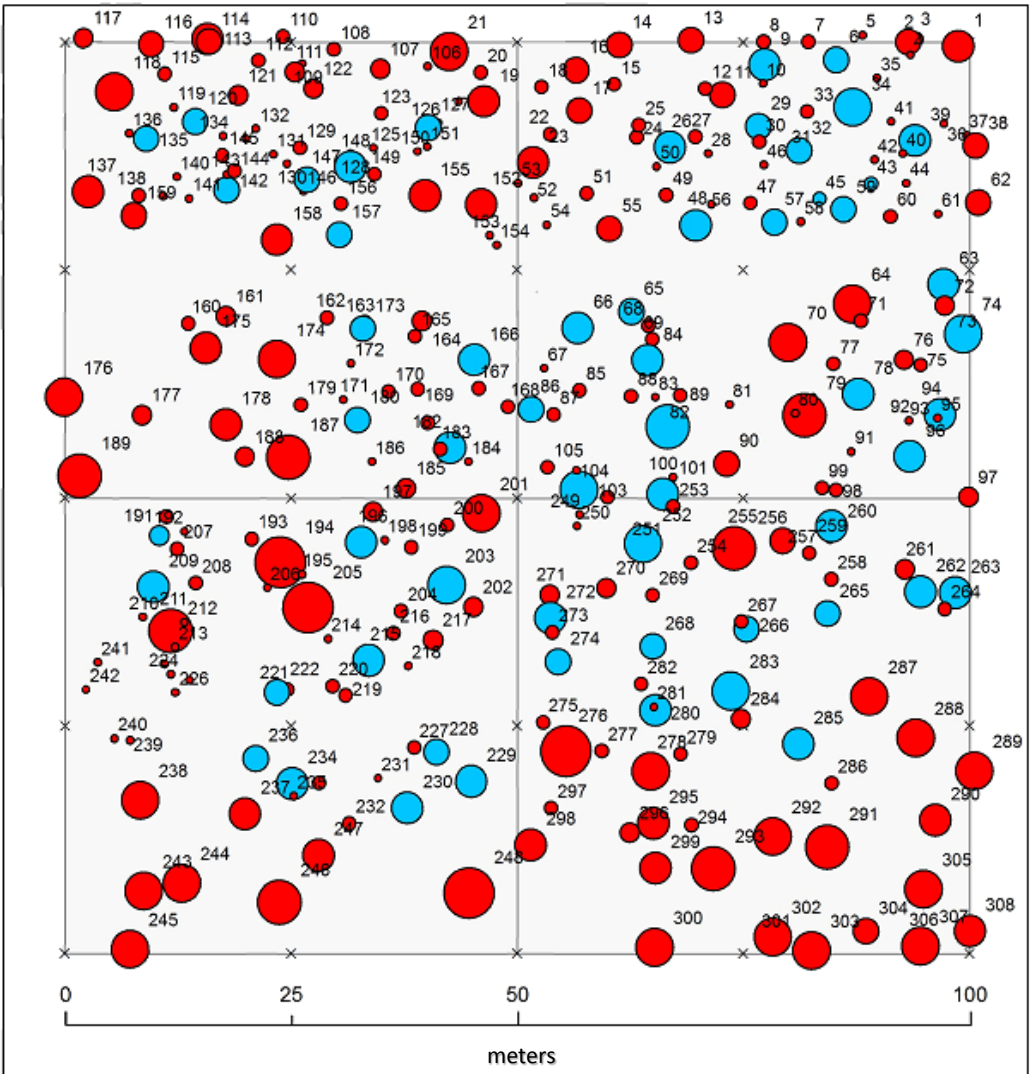
The **Falkenberg** Marteloscope is located in a colline beech – oak forest.



The **economic value (in Euro)** is estimated for each tree based on volume, stem quality and corresponding local timber price lists.

The **habitat value (in points)** is assessed for each tree based on tree microhabitats, taking into account rarity of each habitat and duration for it to develop.

The evaluation of the habitat value is based on a comprehensive catalogue of tree microhabitats. It comprises 23 saproxylic and epixylic features such as cavities, large dead branches, cracks and loose bark, epiphytes, sap runs, or trunk rot characteristics. Tree microhabitats are of prime importance for specialized and often endangered forest species of flora and fauna.



Tree species DBH [cm]

- Beech
- Oak
- Fir

- 7,5 - 15,0
- 15,1 - 25,0
- 25,1 - 35,0
- 35,1 - 45,0
- 45,1 - 55,0
- 55,1 - 65,0
- 65,1 - 75,0
- 75,1 - 85,0

N

Notes

Integrate+ is a demonstration project funded by the German Federal Ministry of Food and Agriculture (BMEL) to establish a European network of demonstration sites for the integration of biodiversity conservation into forest management.

The Integrate+ project runs from December 2013 to December 2016 and builds on a partner network from research and practice with a focus on implementation of integrative management and enhancing transnational exchange of experiences.

Loïc Duchamp, Nicolas Dericbourg, Andreas Schuck and Daniel Kraus, 2016. The Falkenberg Marteloscope field guide. Integrate+ Technical Paper No. 17. 12 p.
Photos: Andreas Schuck

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