



City forest of **Lübeck** Demo sites

Field guide



Hansestadt LÜBECK



City forest of Lübeck

The Hanseatic City of Lübeck, located about 70 km north-east of Hamburg holds around 4,600 ha of communal forest. Since more than 20 years the forests are managed according to the Lübeck concept of close-to-nature forestry which foresees comprehensive protection of natural processes. The city forest of Lübeck was the first enterprise in Germany certified by Naturland e.V. in 1997 and 1998 by the Forest Stewardship Council (FSC). The concept was regarded as best practice example for NGOs including Greenpeace, Robin Wood, BUND and WWF and serves as a showcase for integrated close-to-nature forestry in Germany and beyond.

The city forest of Lübeck spreads across five counties in south-eastern Schleswig-Holstein. The forests are dominated by broadleaved tree species, especially beech and oak. About one fourth of the area is covered with conifers. All forests are situated on soil formations resulting from the Weichselian glaciation. Most of the area has been continuously covered by forest for more than 250 years.

The enterprise employs six persons at its headquarters, four district foresters and about 20 forest workers. The annual cutting-rate averages 15,000 m³ giving main focus on high-quality timber with large diameters. The enterprise provides and sells about 2,500 m³ of firewood and other wood products through its own timber yard especially for the local population of Lübeck.



Map of the city forest of Lübeck (dark green)

© GeoBasis-DE/LVermGeo SH
(www.LVermGeoSH.schleswig-holstein.de)
Stadtwald Lübeck
Scale: 1:200 000

4,250 ha

total forest area

10 m³/ha

annual increment

395 m³/ha

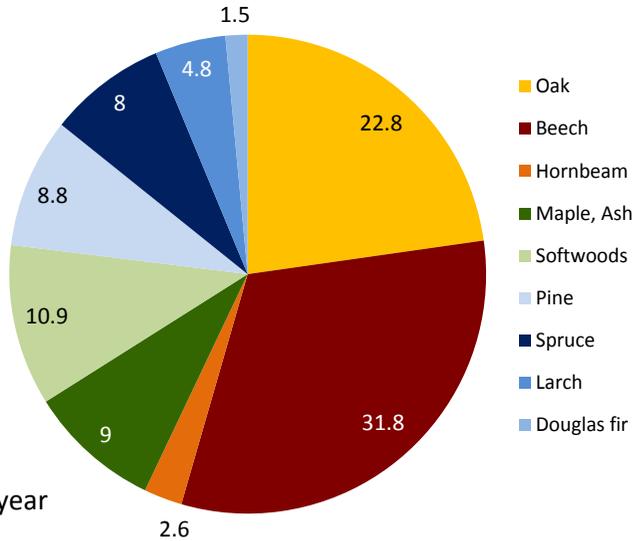
actual average stock

14,500 m³

is the total annual cutting-rate

3.2 m³/ha

is the annual cutting rate per year



750 m³/ha

is the total annual cutting-rate of timber having reached target diameters

23 %

Broadleaves

77 %

Conifers

More than **450** ha

of broadleaved stands > 180-years

Around **180**

breeding pairs of middle spotted woodpecker

Lübeck forest concept



The city forest of Lübeck is known for a well designed forest management concept that integrates the protection of natural processes. Unmanaged reference areas serve for learning and comparison. The concept follows the assumption that optimal ecological conditions are the basis for economic performance while providing other ecosystem services.

Forest management in Lübeck aims at taking into account the complex processes of forest ecosystems. Management interventions are kept at a minimum. Emphasis is given to the protection of natural processes and dynamics. Main goal is to improve the naturalness of managed forests while ensuring the availability of high-value timber assortments.

The Lübeck concept bases on the following principles:

- 1. Naturalness** – The natural forest community represents in the long the lowest risk and highest productivity.
- 2. Following natural yield levels** – Performance and economic goals in forests are defined reasonably and not at the maximum which may negatively affect the forest ecosystem.

3. Principle of minimal intervention –

The principle of minimal intervention in forest management outmatches that of maximum yield both in ecological and economic terms.

The Lübeck forest concept targets to reflect the actual state of knowledge in science and practice. Set goals and corresponding planning should base on the results of well designed and comprehensive inventories.

The design of the concept forsee the integration of experts, authorities and other interested groups in the implementation and controlling of forest management measures. Societal acceptance by environmental organisations and the citizens of Lübeck constitutes an important basis for a successful forestry and the provision of a wide variety of services.

479 ha

Total size of the 8 reference areas

Almost **200** ha

additional area available for forest conservation either without or minimum management intervention

40 % of the forest area

is designated as Natura 2000 or biological hot spots

More than **120**

forest excursions per year

11 %

Share of reference areas of total forest area

80 %

At least of the timber volume, deadwood and the number of habitat trees per hectare present in the reference areas are available in managed forests



Dendrocopos medius

Osmoderma eremita

Reference areas

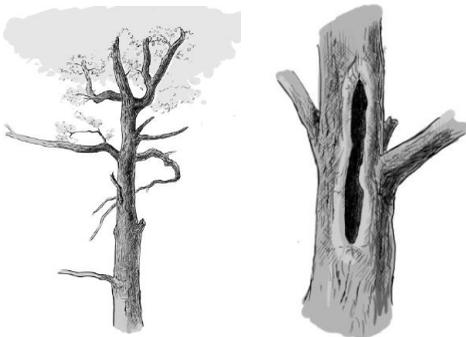
A profound understanding of natural forest dynamics is seen as prerequisite for implementing the Lübeck forest concept. Protecting and maintaining natural processes in forest management is not a static approach in silviculture. It considers and reflects the growing state of knowledge in forest ecology and ecological developments within the enterprise.

Reference areas

Unmanaged reference areas play a key role. On such sites forest development is not influenced by management measures allowing natural process to become visible. They have been selected in the early 1990s ensuring a good representation of all forest types. They are at least 20 ha in size and cover 11 % of the city forest area. Sampling and full inventories are implemented as are scientific studies. Such activities give insight on the current state of the forest in the reference area and document their development. The derived knowledge supports the implementation of close-to-nature forest management in commercial forests and allows for validation and adaptive measures if needed. They are also frequently visited for education and training purposes.

Deadwood and habitat trees

In the city forest of Lübeck there are no defined threshold values for deadwood and habitat trees. Both structural elements combined should, however, make up 10 % of the above-ground tree biomass. The development of managed forests is documented and should follow those of the reference areas. This guarantees that no active measures are necessary to artificially create deadwood or designate habitat trees.



Typical structures of habitat trees



The minimal intervention principle

Thinning operations take place only if non-native trees or trees of poor timber quality are in competition with high-quality, native trees. Trees are regarded as competitors if they display equal sociological position and vitality. All operations are generally conducted without the use of harvesters. On good beech forest sites, two to three regular thinnings take place until trees reach about 40 cm dbh. After that no further interventions are conducted. This approach is based on findings from the reference areas. They show that unmanaged stands with trees above 40 cm dbh have only marginally lower increment as compared to those treated conventionally. Also wood quality is comparable.



Harvest of target diameter trees

Large target diameters correspond with trees reaching higher age which leads to higher ecological, economic and aesthetical values. Generally, the income from marketing timber in city forest of Lübeck must be at minimum threefold the costs of harvesting. Close contact to clients and direct sale of valuable timber on site results in high timber prices.

Target diameters (selection):

- Oak: 80 cm (70 cm for C-quality)
- Beech: 70 cm (65 cm for C-quality)
- Spruce: 45 cm
- Pine: 50 cm

Hunting regime

In order to safeguard natural regeneration and the diversity of typical forest plant species Lübeck has put in place an effective hunting regime jointly with hunters. Culling rates are based on browsing inventories which are regularly conducted on stand level. Driven hunts are foreseen as a regular and effective hunting method. In the vicinity of densely populated areas, driven hunts are kept small. Hunting foxes, badgers, hares and fowl has been banned in the city forest of Lübeck.



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.



Schmitt, H., 2016. City Forest of Lübeck demo sites field guide. Integrate+ Technical Paper No. 11. 8 p.

European Forest Institute, 2016

www.integrateplus.org