



The Sailershausen Marteloscope

Field guide



LIFE SPAN project (LIFE19
NAT/IT/000104) is co-
funded by the EU LIFE
Programme

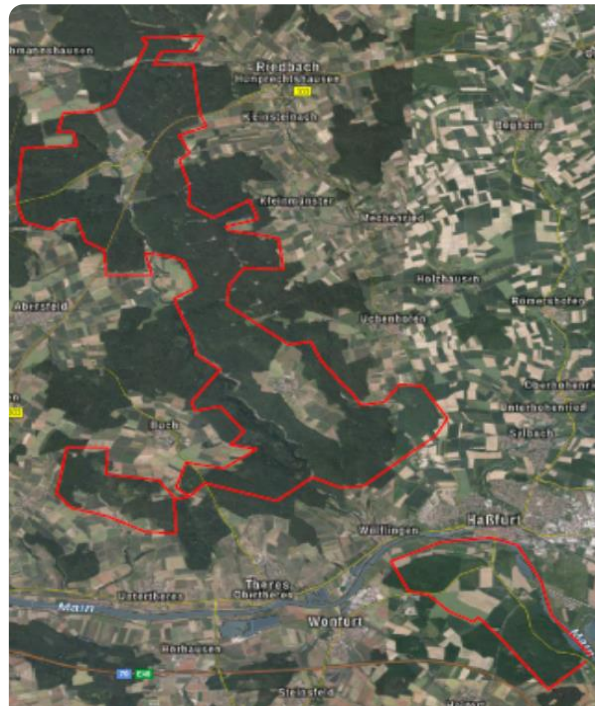


SPAN
SAPROXYLIC HABITAT NETWORK

University Forest Sailershausen

The Sailershäuser Forest, with an area of about 2350 ha, is owned and managed by the University of Würzburg. It is located near the village of Sailershausen in the municipality of Haßfurt, about 70 km north-east of Würzburg. When it was founded in 1582 the university received around 2000 ha of forest and 600 ha of agricultural land as an endowment from Prince-Bishop Julius Echter which had previously belonged to the church. The land was scattered across Lower Franconia from the Spessart to the Rhön and the Haßberge. In 1803 the Theres Monastery was occupied by Napoleonic troops and secularised. As a result approximately 1000 hectares of monastery forest around Sailershausen came into the possession of the Kingdom of Bavaria. In 1821 a voluntary exchange took place between the University of Würzburg and the Kingdom of Bavaria, during which the forests in the vicinity of Sailershausen became the property of the university. In return the kingdom received the university's scattered properties. During the forestry reform of 1885 the university forest office was elevated to a royal forest office with sovereign duties. It existed until the forestry reform of 1973. During the last century the formerly coppice with standards forests were in parts converted to high forest favouring coniferous species (mainly Scots pine, Norway spruce and later Douglas fir). By 1989 49% of the forest area was stocked with conifer species. Due to the devastating windstorms in the 1990s, bark beetle calamities and drought damage, the amount of spruce declined from 23% to 4% (state of 2022).

Currently the university forest of Sailerhausen is covered by 75% broadleaved species. The high proportion of valuable deciduous hardwoods (ash, service tree, wild service tree, field maple, sycamore maple, Norway maple, cherry, lime and elm) should be emphasised. These species represent about 18% of the total forest area. Forests are mainly regenerated naturally. In future the proportion of coniferous forest will continue to decrease but is not intended to drop below 10%. Norway spruce will be replaced by silver fir which has been planted more frequently during the last years.



2173 ha

Total forest area

9.0 m³/ha

Annual increment

274.2 m³/ha

Average volume

19500 m³

Annual growth

70 %

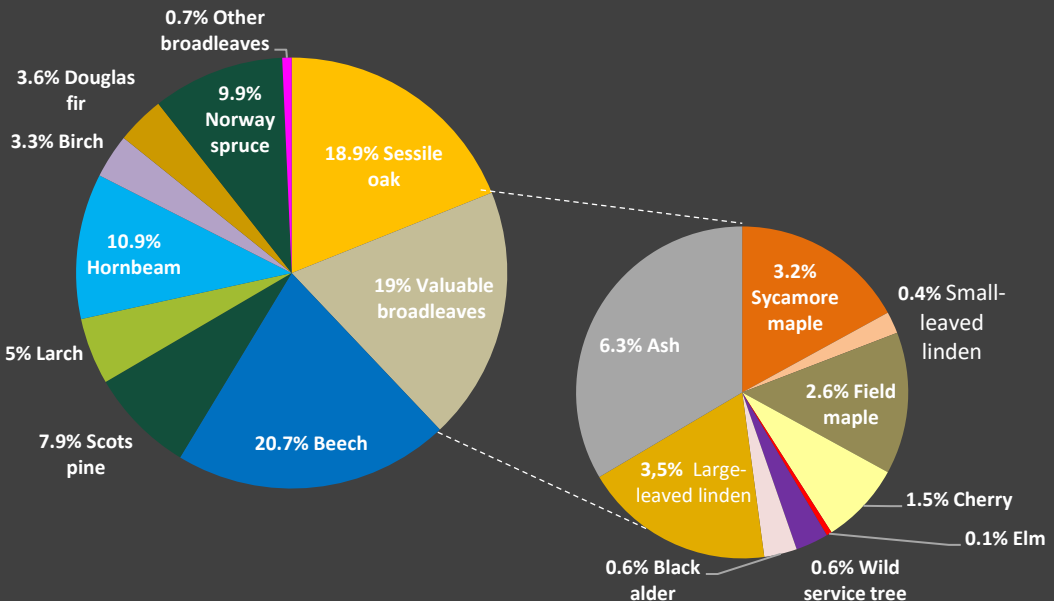
Broadleaved forest (% of total volume)

13500 m³

Annual removal

30 %

Coniferous forest (% of total volume)



Source: Inventory data (2014)



Natural forest communities present on more than 95% of the Sailershausen University Forest Office area are namely Galio-odorati-Fagetum, Cephalatero-Fagenion and Galio-Carpinetum.

The following nature conservation goals apply in the Sailershäuser Forest:

- Protection of eyrie and cavity trees
- Preservation or enrichment of deadwood (10 m³/ha)
- Protection of particularly valuable habitat trees (10 trees/ha)
- Conservation of valuable biotopes and forest habitats
- Promotion and protection of rare forest species (orchids, wildcat, black stork)
- Strictly ecologically oriented forest management in protected areas (Natura 2000 areas and nature reserves)

The deadwood amount (standing and lying deadwood above 20 cm diameter) that was measured in the course of an inventory in 2014 for the total forest area of Sailershausen amounts to 9126 m³. This represents on average 4.2 m³/ha. Deadwood is enriched by management measures such as retaining tree crowns after felling in the stands and by the preservation of dead trees. Dying conifers (mainly Norway spruce) are usually removed due to the potential risks of bark beetle infestations.

1096 ha

Forest area with
protection function

Corresponds roughly to

50 %

of the total forest area

Deadwood

9126 m³

with a diameter of
> 20 cm

Equals to

4.2 m³/ha

Total number of habitat trees

24824

Corresponds roughly to

11

habitat trees/ha



Tree microhabitat 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. This accounts especially to 'saproxylic' species which depend 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.

*Woodpecker
cavities*



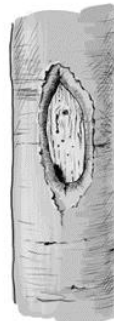
*Crown
deadwood*



*Epiphytic
crypto- and
phanerogams*



*Bark loss /
exposed
sapwood*



...and biodiversity



Dryocopus martius
(Black woodpecker)



Lucanus cervus
(European stag beetle)



Myotis bechsteinii
Bechstein's bat



Fomes fomentarius
(Tinder fungus)

Research in the university forest

Education and research play an important role at Sailershausen University Forest Office. The office is a popular location for university field excursions and it cooperates with the forestry school located in Lohr am Main providing students with practical training opportunities. It is also location for many research projects. Topics include for example beech performance under a changing climate, soil-water content monitoring, biodiversity experiments and the establishment of forestry trial areas.

Within the project '*LIFE SPAN - Saproxyllic Habitat Network*' (LIFE19 NAT/IT/000104), 18 so-called "saproxyllic habitat sites" (SHS), were created during the winter of 2021/22. These SHS are "islands" of about 1.5 hectares located within commercially managed forest, in which targeted measures are carried out that promote biodiversity conservation. Since most stands in the university forest are relatively young, microhabitats which mainly occur on older trees are rather rare. Within each SHS microhabitats were deliberately created on selected trees. For this purpose, individual trees were topped at a height of four to five metres to simulate wind breakage. On other trees a dying process was initiated by girdling which then proceeds at different speeds depending on the tree species and the intensity of the girdling measure. Further, valuable tree related microhabitats were artificially created as for example tree cavities and injuries at the base of the trunk. Also trees were felled or uprooted and remain in the stand as lying deadwood. For ensuring a variation in light conditions a gap was created in the SHS. Furthermore, one area in each SHS was regularly thinned. All sites are scientifically investigated based on the different measures that were applied. Main aim is to study to which extent the measures affect the diversity and abundance of insects, birds, bats and plants. The LIFE SPAN project is financially supported by the EU LIFE Programme and runs from 2021 to 2026.



Marteloscope site conditions

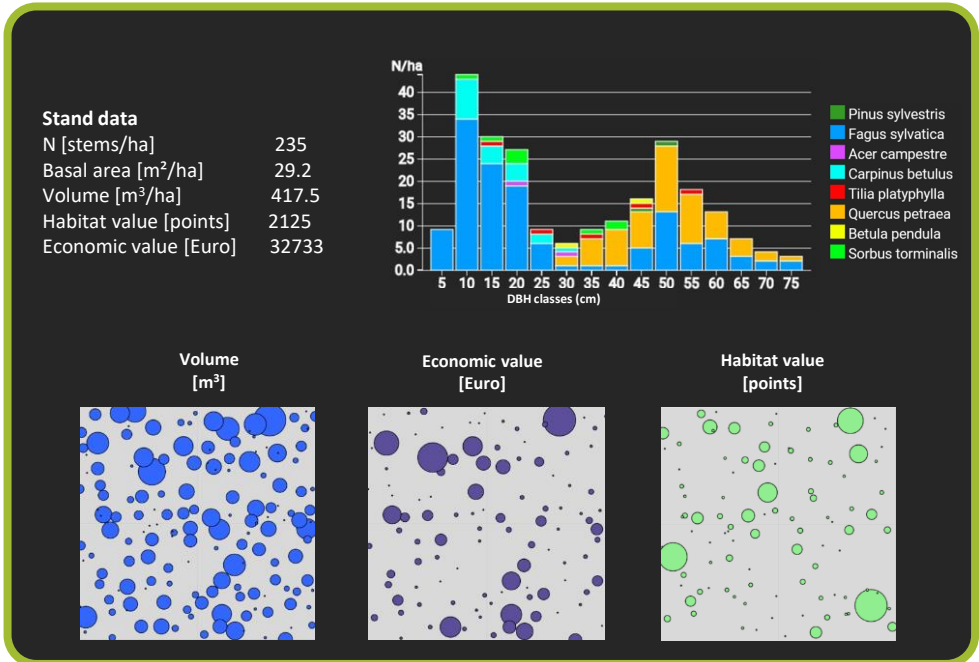
Altitude:	360 m.a.s.l
Forest ecological region:	Franconian Keuper and Alb foothills
Geology and soil:	Layered fine clay Lower Keuper (Lower claystone - yellow limestone layers)
Mean annual temperature:	8.5 °C
Annual precipitation:	670 mm
Natural forest community:	<i>Galio-Fagetum</i>

The Sailershausen marteloscope is located within a multi-layered 130-170 year old mixed forest stand with an average stock of 343 m³/ha and a stocking rate of 0.88. The main tree species are oak (35%) and beech (49%) with admixture of larch, lime and birch. The oaks are mainly of good quality. The entire area is covered by natural regeneration varying from a few centimetres to more than two meters in height. Tree species found in regeneration include mainly beech, but also lime, silver fir and sycamore maple. Further the stand is rich in tree microhabitat bearing trees.



Marteloscope stand characteristics

The Marteloscope **Sailershausen** is located in an approximately 130-170 year old, oak-beech stand admixed with small amounts of lime, wild service tree, Scots pine, hornbeam, birch and field maple.

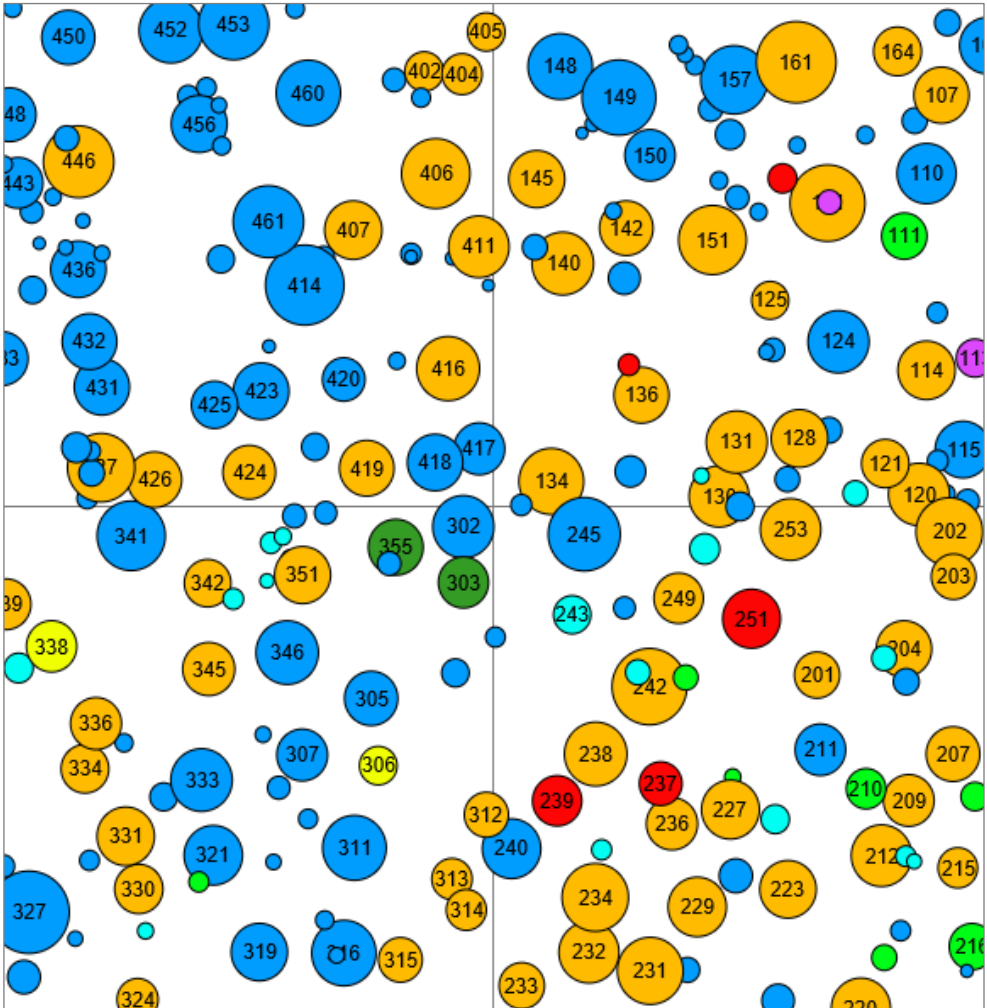


The **economic value (in €)** is estimated for each tree based on volume, stem quality and corresponding local timber price lists.

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 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.

Marteloscope map (1.0 ha)



Tree species

- | | | | |
|---|-------------------|---|-------------|
|  | Sessile oak |  | Scots pine |
|  | Beech |  | Hornbeam |
|  | Lime |  | Birch |
|  | Wild service tree |  | Field maple |

In the LIFE SPAN project deadwood habitats are conserved and species of community interest promoted through innovative planning and management. All measures are accompanied by research and their effects evaluated. The economic sustainability is documented for the proposed interventions. The LIFE SPAN project (LIFE19 NAT/IT/000104) is financially supported by the EU LIFE Programme and has a project duration of 2021 to 2026.



Stark, H., Junginger, M., Derks, J., Schuck, A., 2023. The Sailerhausen Marteloscope – Field guide. Technical Paper. LIFE SPAN Project (LIFE19 NAT/IT/000104). 12 p.

Photos: Michael Junginger and Andreas Schuck

<https://www.lifespansproject.eu>

