

The last 125 years in the Josenwald. Formerly exploited, today a forest reserve

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Abstract

Forest structure was sampled in the Josenwald reserve in northern Switzerland. The reserve, which is under protected status since 1970, is 85 ha large and located on a steep south-facing slope ranging from 420 to 1300 m a.s.l. above the Walensee lake. In this inventory, the forest was assessed on 87 concentric plots of 200 and 500 m² size.

The inventory showed a high naturalness of the Josenwald with respect to tree species composition and dead wood volume. *Fagus sylvatica* is the most frequent tree species in the reserve, followed by *Tilia cordata*, *Fraxinus excelsior* and *Quercus spec.* The volume of standing and lying dead wood amounts to 98.1 m³/ha in the *Fagus* stratum and 62.4 m³/ha in the *Tilia-Quercus* stratum, similar to values found on similar sites in old-growth forests in the western Carpathians. In contrast, the growing stock still only amounts to 253 m³/ha in the *Fagus* forest stratum and 235 m³/ha in the *Tilia-Quercus* stratum. Around 1880, it was even clearly below 100 m³/ha due to severe timber cutting.

In total, 119 habitat structures per ha were found in the *Fagus* stratum, and 60 in the *Tilia-Quercus* stratum. Root plates were the most frequent habitat structure, followed by cavities with a mulm body, stem cavities and snags with a dbh of at least 36 cm as well as crown dead wood. Trees with dbh ≥ 80 cm were very scarce. Twenty-six percent of all living trees with dbh ≥ 36 cm had at least one habitat structure, and 26% of all trees with habitat structures had more than one.

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