ECOLOGY AND SILVICULTURE OF WILD SERVICE TREE (*SORBUS TORMINALIS* (L.) CRANTZ): A LITERATURE REVIEW

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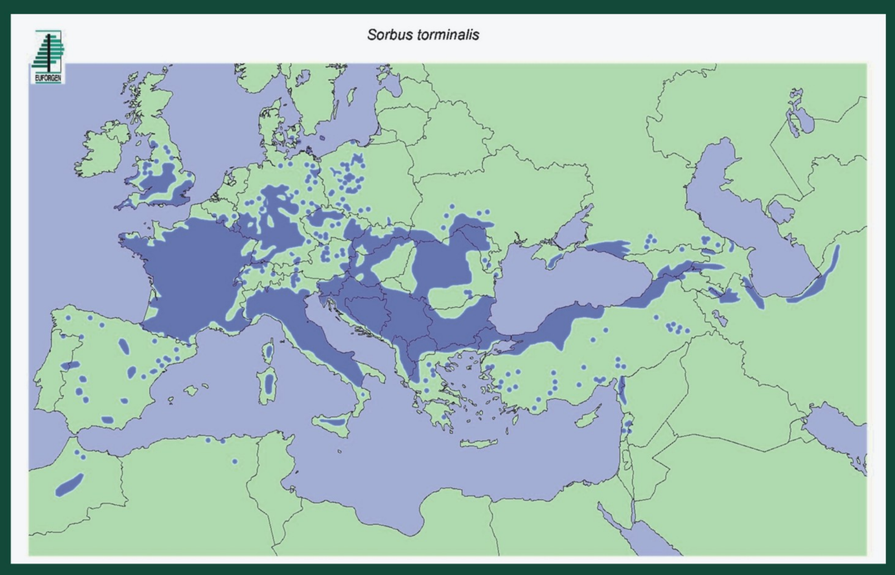
Introduction

Wild service tree (*Sorbus torminalis* (L.) Crantz) is widely distributed across western, central and southern Europe as well as northwest of Africa and south-west of Asia.



Distribution map of *Sorbus torminalis* (L.) Crantz (after Demesure-Musch and Oddou-Muratorio, 2004)

Across this range the species occurs at elevations between 100 m and 2,200 m, especially in plain and hilly areas.

Site requirements

It is considered as a sub-mediterranean species typical for the oak-dominated forests.
This species requires warm climates and a minimum of 600 mm of annual rainfall.
Wild service tree can grow on both acid and base-rich soils (pH between 3.5 and 8), being adapted to soils subjected to temporary flooding alternating with dry periods.

Wild service tree on a shallow and rocky brown soil (photo V.N. Nicolescu)

Growth pattern

It grows quickly in height (40-60 (up to 100) cm/yr) during the first years and can reach 25-30 m in height under optimum site and light conditions.
Wild service trees grow slowly in diameter but can reach 50-60 (even 70 or 80) cm.

The largest wild service tree in Denmark (Moesgaard Park, 30.11.2006; dbh = 1.45 m; h = 24.00 m; radius S = 7.90 m, W = 8.90 m, N = 11.30 m, E = 9.10 m; Courtesy to J. P. Skovsgaard) (photo V.N. Nicolescu)

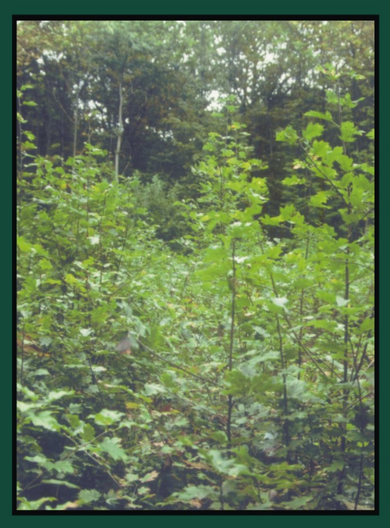
Crown architecture, self pruning and defects

It shows good self-pruning and does not develop epicormic branches following heavy artificial pruning or thinning.
A frequent defect of wild service trees is the presence of low forks (at heights inferior to 3 m), hindering the production of high-quality veneer logs.

Good natural pruning of wild service tree (photo V.N. Nicolescu)

Ability to grow in mixtures

Wild service tree is a *light demanding* and *post-pioneer* (early succession) species, very sensitive to the competition in the tree layer and reacting positively to late thinning.



Stand dynamics

The species shows a good potential for natural regeneration, both generative (by seeds) and vegetative (by stump sprouts or root suckers). The root suckers are more shade tolerant than the seed-originated seedlings and as the latter are preferentially browsed by deer and small rodents their protection by fencing may be required.

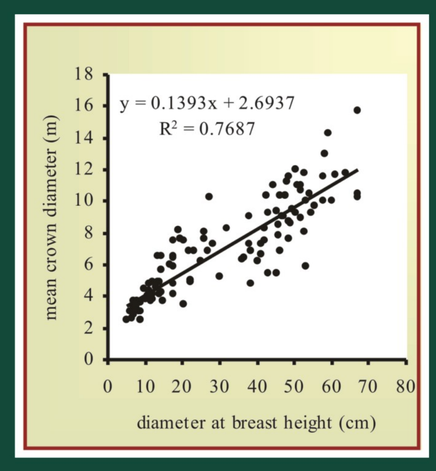
Rich natural regeneration by seed of wild service tree (photo V.N. Nicolescu)

Silviculture

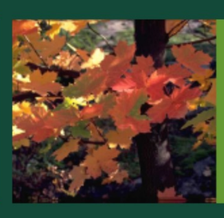
The silviculture recommended for wild service tree is *intensive, dynamic and tree-oriented.*
It involves high intensity weeding and cleaning-respacing, targeting the complete elimination of tall surrounding trees.
Formative pruning is recommended for removing the forks and thick ascending branches and prevent the occurrence of the *chandelier* crown form.
It is followed by high pruning, targeting the production of a branch-free bole of minimum 3 m (best 6-7 m) length.

Branch-free bole of a high-quality wild service tree (photo V.N. Nicolescu)

Heavy thinnings from above are performed subsequently, favouring the final crop trees selected at the end of thicket-beginning of pole stage.
At rotation ages of 100-120 years, these free-grown trees for veneer production are expected to have large diameter of breast height (at least 60 cm dbh), strongly correlated with wide crowns, and regular annual rings of 2.5 to 4 mm wide.



Correlation between diameter at breast height and mean crown diameter of wild service trees (after Hochbichler *et al.*, 2001 and Nicolescu, 2007)



Growing Valuable Broadleaved Tree Species

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