

## **Sorbus on the island of Bornholm:**

### **A genetic melting pot for wild service tree, rock whitebeam, Swedish whitebeam, Swedish service tree and rowan**

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Bornholm is a Danish island located in the Baltic Sea between Sweden and Poland. The island covers an area of 588 km<sup>2</sup>. The soils are derived mainly from Holocene glacial till overlying Pre-cambrian gneiss or granite and, at some places, Cambro-Silurian sandstone or shale. There are frequent outcrops of bedrock.

There are five *Sorbus* species on Bornholm (Figure 2):

wild service tree	<i>Sorbus torminalis</i> (L.) Crantz
rock whitebeam	<i>Sorbus rupicola</i> (Syme) Hedl.
Swedish whitebeam	<i>Sorbus intermedia</i> (Ehrh.) Pers.
Swedish service tree	<i>Sorbus hybrida</i> L.
rowan	<i>Sorbus aucuparia</i> L.

The botanical, genetic and ecological characteristics of each *Sorbus* species are briefly outlined. It is argued that wild service tree, Swedish whitebeam and rowan could play a larger role in silviculture. Rock whitebeam (due to its bushy growth) and Swedish service tree (due to its infrequent occurrence) are considered of little or no interest for silviculture.

**Wild service tree:** A large share of Denmark's natural populations of wild service tree is found on Bornholm, primarily on inaccessible coastal cliffs, but also in the forest. On coastal cliffs wild service tree often only grows to the size of a bush or a small tree (Figure 1), while in the forest it can grow to timber dimensions (Figure 3). Although there are only few individuals in each population, they collectively represent an important genetic resource. It is suggested to establish a seed orchard based on locally collected scions and to install experiments comparing controlled-pollination offspring to offspring from, for example, the large autochthonous population in Ulvshale Forest on the Danish island of Møn or the superior German populations at Sailershausen.

**Swedish whitebeam:** Swedish whitebeam is found almost exclusively in the open landscape, where it is frequently planted in hedgerows and as a solitary tree. It thrives particularly well on calcareous sites, but clearly has a much wider site potential (as witnessed by its growth when planted on other site types in northern Europe). Swedish whitebeam is healthy and wind firm, tolerates salt-spray deposition and is capable of producing a sizeable stem of timber quality (Figure 4). Due to the species' asexual reproduction through agamospermy or apomixis, offspring will inherit essential mother tree characteristics such as growth potential, stem form and health status. It is suggested that Swedish whitebeam should be tested for forestry use.

**Rowan:** Rowan is one of the commonest tree species in many parts of Europe, including Bornholm. It is not dealt with specifically in this article, but it is suggested that the species should be considered given a more prominent role in forestry.

Finally, it is pointed out that Bornholm deserves more attention in *Sorbus* research. The island's role as a genetic melting pot for *Sorbus* at species and genus level has not yet been explored. Due to its geographic isolation from other *Sorbus* populations Bornholm could be an interesting case-study, not only for research, but also for the development and testing of suitable management practices for conservation as well as for economic forestry.

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