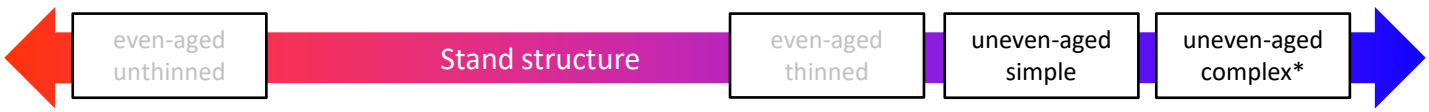
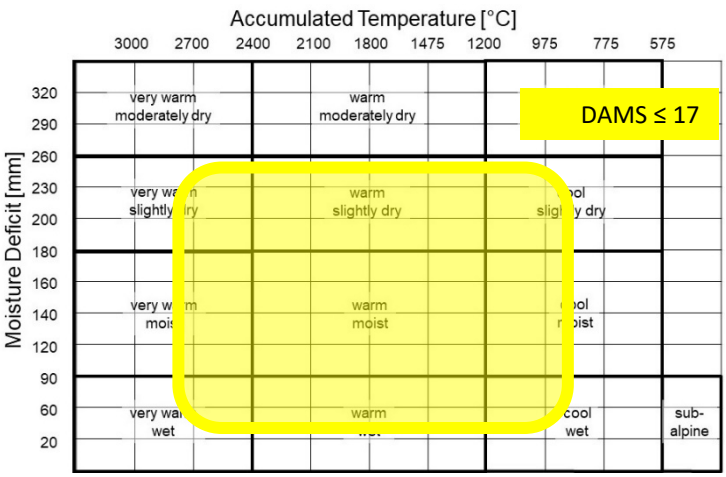
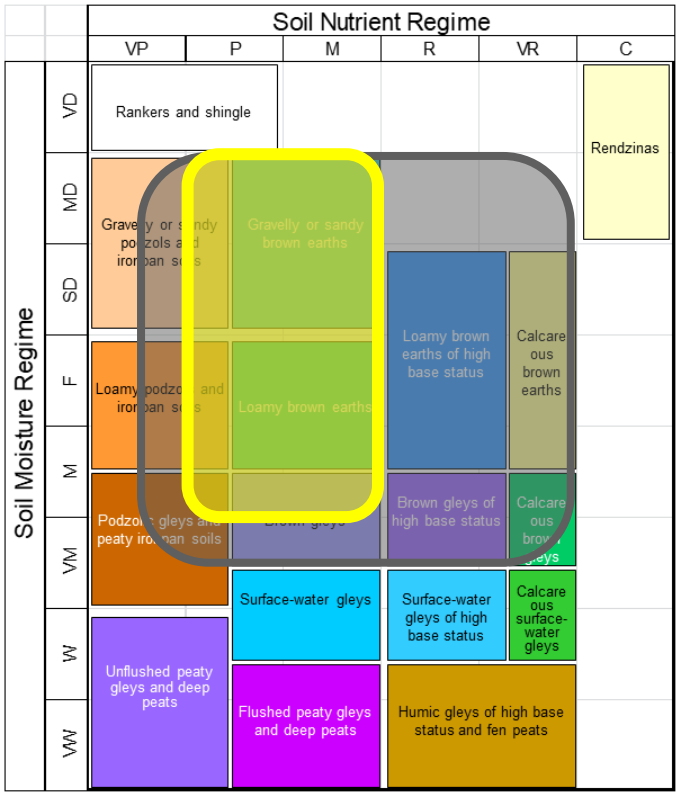
FDT 7.2.2 SBI and SOK

1. Structure and dynamics:
Single to multiple-storeyed stand dominated by SBI with a significant proportion of SOK in individual tree to small area mixture. Category C minor species such as SP, ASP, ROW, BE and others according to site conditions.
Species distribution: SBI 50 – 80% SOK 20 – 50% minor species: < 30%
Stands may be managed LIMA or CCF regimes, aiming to develop and maintain a diverse stand structure. SOK is likely to require planting but SBI and minor species should regenerate naturally.



2. Ecological suitability:
This FDT represents successional stage of NVC types W11, W16, W15 and W17 of the lowland and upland climatic zones. Suitable for sandy to loamy soils of poor to medium fertility where SBI performs well (GYC > 6) and SOK is also a viable option. Similar to FDT 5.2.1 but with reversed proportions of BI and OK.





3. Management objectives:

Economic (SBI GYC > 6):	SBI – sawlogs, target DBH > 40cm in 60 – 80yrs
	OK – sawlogs, target DBH > 50cm in 120 – 180yrs
Environmental and social:	Diverse woodland of natural appearance and high conservation value. Presence of deadwood, veteran trees and habitats for light demanding species. Attractive to visitors because of its open structure and diversity.

FDT 7.2.2 SBI and SOK

4. General management principles for the FDT

This FDT is comparable to FDT 5.2.1 but with inverse species proportions. Compatibility of SBI and SOK to grow in mixture is only moderate (CS = 3); therefore (and for timber quality) spatial separation in groups to small areas will be preferable. Growth pattern and relatively short life expectancy of SBI dictate that respacing and thinning must focus on thicket to small timber stage in order to achieve sawlog dimensions. In contrast, SOK responds well to thinning interventions throughout its lifetime and the Q/D management approach with high initial stocking density may be used provided sawlog production is a viable option. As a typical pioneer species SBI will outgrow SOK at young age but lose its competitive advantage later, thinning interventions will have to be adapted with regard to tree species and time. Crown thinning should be applied throughout for both species, starting at 10 – 14m top height in BI and 16 – 18m in SOK. BI will be managed on a much shorter rotation than SOK and the FDT may have to be reviewed at this stage. LIMA / CCF methods should be used to maintain the desired horizontal and vertical stand structure.

5. Timeline

stage	H_{100} [m]	intervention
Establishment		• Natural regeneration in densities of > 10000 seedlings/ha or planting of 2000 (SBI) – 5000 (SOK) trees/ha. Most commonly SOK may be established in clusters (20 – 30 plants at 0.3 – 1m spacing) and BI recruited from natural infill.
Young stand	< 3	• Protection against animals / plants as necessary. • SBI: Systematic respacing to 1500 – 2500 trees/ha (800 – 1200 trees/ha in areas of difficult access) if N > 3000 trees/ha at 1 – 2m tree height. • Regulation of species composition and minor species as required.
Thicket stage	4 – 8	• SBI: Cleaning or pollarding of aggressive SBI overtopping promising SOK. Systematic respacing to about 800 – 1200 trees/ha if respacing in previous stage has been missed. • SOK: Negative selective respacing (removal of undesirable individuals).
Pole stage	10 – 14	• SBI: Select 200 – 300 FC trees/ha and thin to achieve gaps of > 1m around crowns of SBI FC trees. • SOK: Selective respacing as necessary (refer to FDT 5.2.1). Maintain closed canopy for ongoing self-pruning and differentiation.
Pole to small timber stage	16 – 18	• SBI: Focus on competition status of FC trees – repeat crown thinning when canopy gaps close. Monitor competition between SBI and SOK and adjust thinning to maintain target species composition. • SOK: Select 80 – 100 FC trees/ha when the desired length of clean bole has been reached and apply crown thinning to release from competition.
Timber stage		• Monitor species composition, stand density, stability and health, and thin accordingly. Apply crown thinning as long as necessary for the benefits of FC trees, ensuring live crown ratio remains at > 60% of tree height. • Assess potential for natural regeneration and decide on harvesting method when SBI approaches target DBH; improve conditions if necessary. • Monitor occurrence and growth rate of SBI regeneration, review FDT and / or supplement by planting if necessary.
Final harvesting and regeneration stage		• Time final harvesting operations in SOK with mast years if possible. • Monitor light level, ground vegetation, occurrence and growth rate of regeneration, supplement by planting if necessary, or restock.