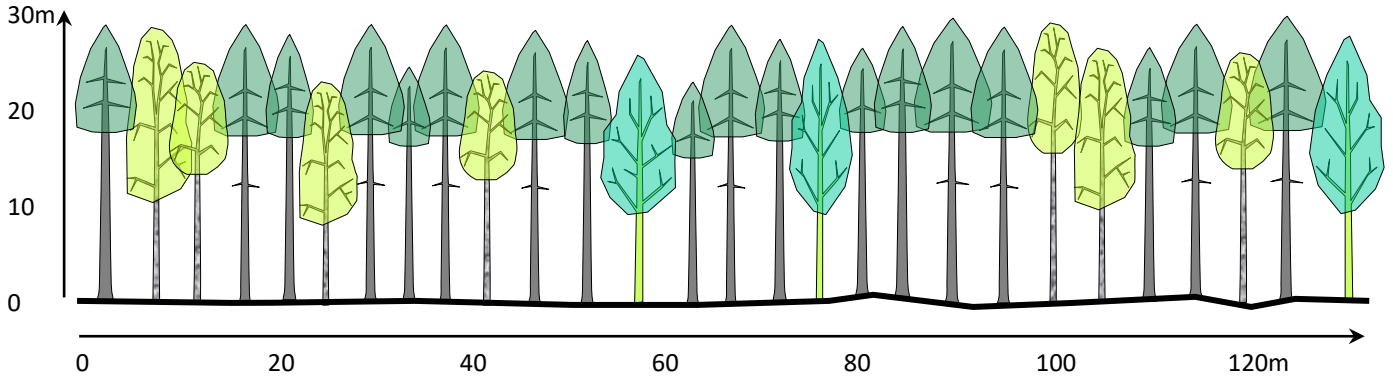
FDT 1.1.8 SS and short-lived broadleaves (XBSL)

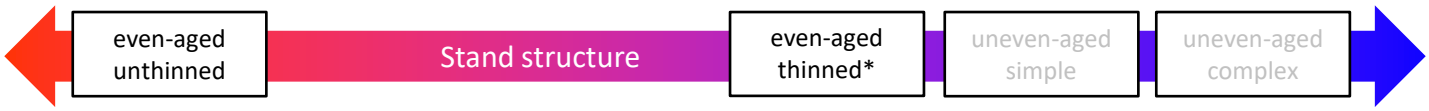


1. Structure and dynamics:

Even-aged, single storied stands of SS interspersed with XBSL. Likely to have originated from XBSL infill in SS plantation, mainly with BI, WIL, ASP, ROW. Minor species may also include any others of category A.

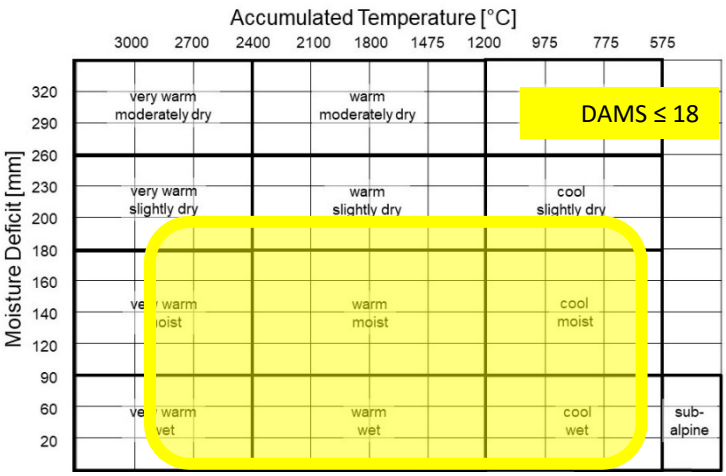
Species distribution: SS 70 – 90% XBSL 10 – 30% minor species: < 10%

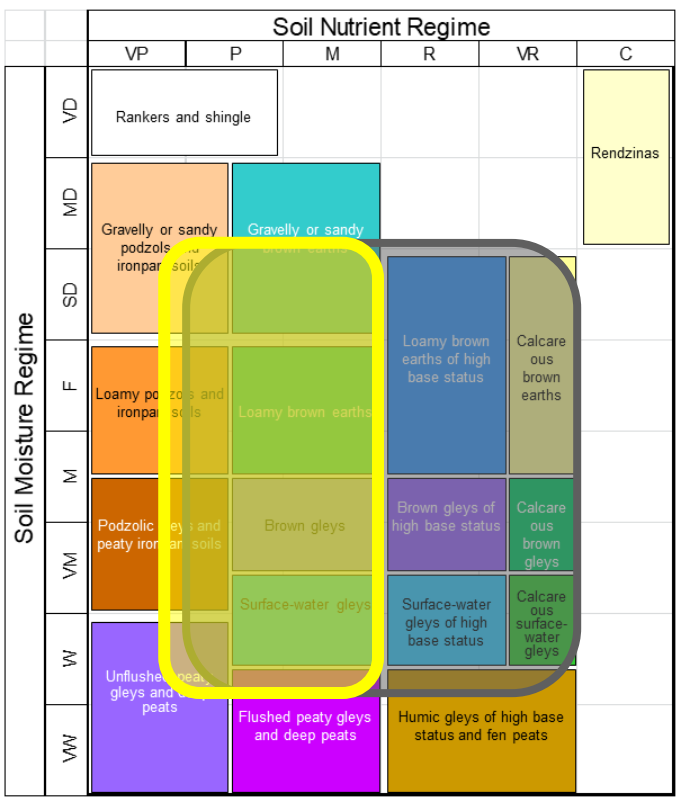
The XBSL component will often be the result of SS having partially failed at restocking. Thus, the reasons for failure need to be established in order to avoid recurrence. Transformation to another FDT may be considered, otherwise stands will largely be managed under a clearfell-and-restock regime.



2. Ecological suitability:

XBSL component represents parts of NVC type W4. May be considered transition stage. Likely to occur on a wide range of sites, usually of lower fertility.





3. Management objectives:

Economic:	SS – sawlogs / pulp / chip in 40 – 60yrs XBSL – optional
Environmental and social:	Inclusion of XBSL element will better maintain soil quality compared to a pure SS stand and will also increase biodiversity value. The mixed character of the stand is likely to be attractive and popular for amenity and recreation.

4. General management principles for the FDT

The role of XBSL in this FDT is mainly for environmental and social benefits, however economic opportunities arising from biomass / timber production should be used wherever possible. Most XBSL will be able to keep up with SS growth rate for some time (especially on less fertile sites) but essentially this FDT is confined to shorter rotation lengths. Management of young stands should aim to achieve canopy cover and maintain even growth of all stand components. Stands originating from dense natural regeneration are likely to require respacing in order to steer species composition and develop good tree stability, which is essential for retaining thinning options. A no thinning approach is possible but will limit management options and achievable target DBH. SS will respond well to thinning throughout its lifetime but the thinning of XBSL should focus on early interventions. Thinning should start at around 10 – 12m top height, generally as crown thinning. Thinning should aim to maintain species composition and canopy cover. Review of FDT at time of final harvesting if the current stand has resulted from XBSL infill on a SS restock site.

5. Timeline

stage	H_{100} [m]	intervention
Establishment		• Planting of 2000 – 3000 trees/ha, XBSL often from natural regeneration.
Young stand	< 3	• Protection against animals / plants as necessary. • Respacing if N > 3000 trees/ha at 1 – 2m tree height. Reduce N to 1500 – 2500 trees/ha; in areas of difficult access, along exposed edges and on sites of high wind damage risk reduce N to 800 – 1000 trees/ha. • Clearing of any damage caused by felling / extraction of overstorey trees. • Promotion of minor species as required.
Thicket stage	3 – 10	• Generally no interventions; except for pre-selection of high quality XBSL stems if sawlog production is envisaged.
Pole stage	10 – 12	• First selective thinning (crown thinning), mainly removing dominant / co-dominant trees with visible defects, coarse branching or poor shape. • Selection of 150 – 250 FC trees/ha (SS + XBSL, optional).
Pole to small timber stage	12 – 20	• Continue crown thinning at height growth intervals of 3m, focussing on the competition status of FC trees.
Timber stage		• Monitor crown length and h/d ratio in SS (stability indicators), species composition, height growth and canopy cover in SS and XBSL (competition indicators) and thin accordingly. • Apply crown thinning as long as necessary for benefits of FC trees and stand stability, otherwise gradually change thinning type to low. • Plan for final harvesting when dominant / FC trees approach target DBH. • Assess potential for natural regeneration and improve conditions if necessary, review suitability of FDT and consider LIMA / CCF methods as appropriate.
Final harvesting and regeneration stage		• Carry out harvesting / restocking operations according to agreed method.