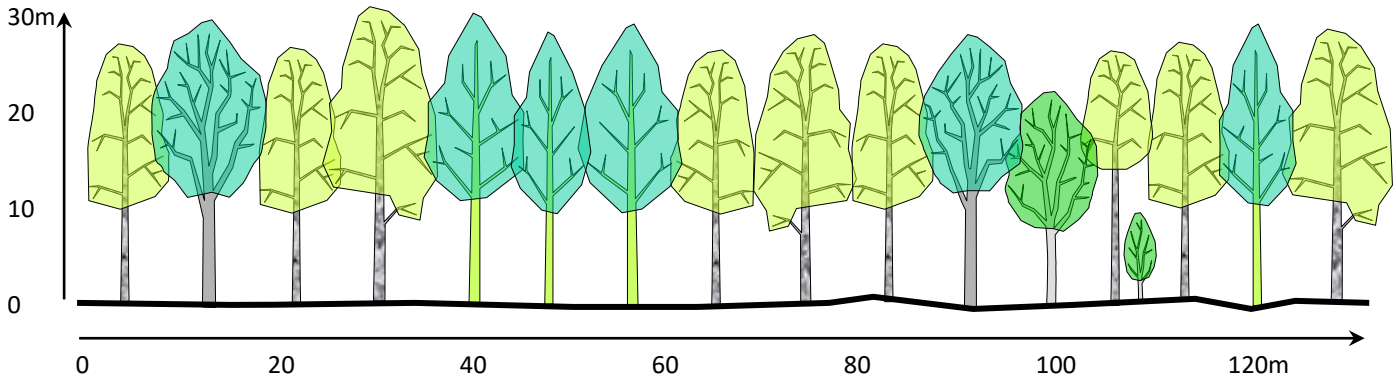
FDT 7.1.2 BI and short-lived broadleaves (XBSL)



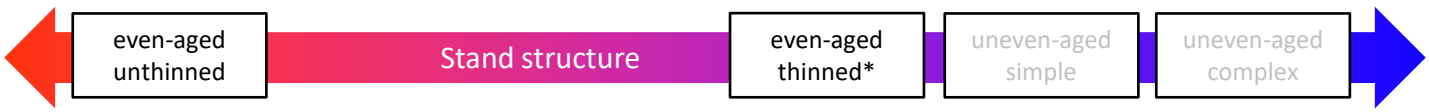
1. Structure and dynamics:

Generally single-storey stands dominated by BI birch with a high proportion of native XBSL such as ASP, ROW, WIL and category C minor species. Mixture type may vary from individual trees to small areas.

Species distribution: BI 50 – 70% XBSL 30 – 50% minor species: 10 – 30%

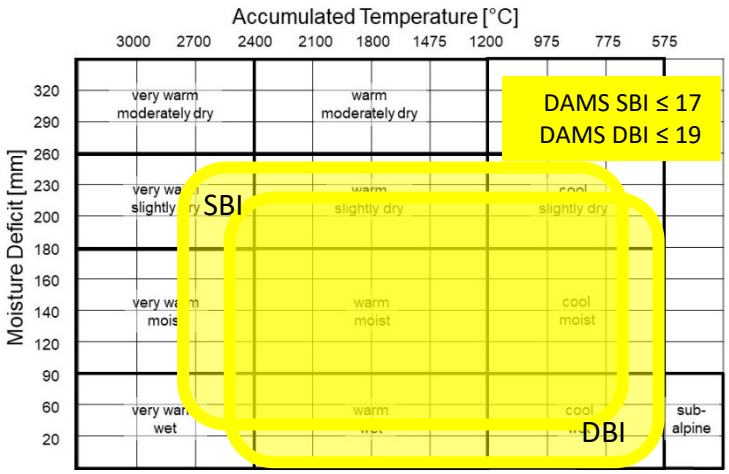
This FDT often results naturally from pioneer species colonising sites with variable soil conditions.

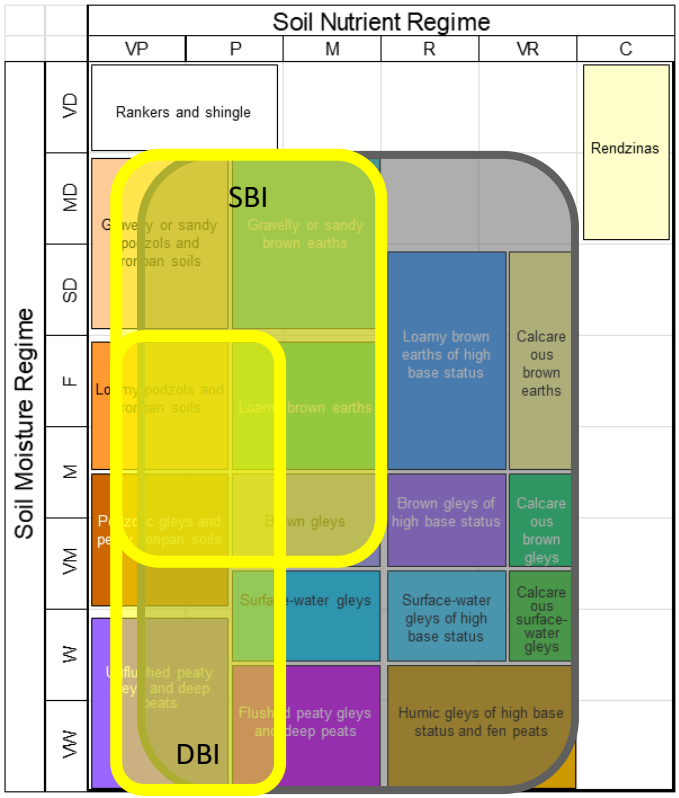
Management will usually be low input and use natural regeneration as the main restocking method.



2. Ecological suitability:

Represents NVC type W4 where XBSL occupy microsites less suitable for BI. Soils are generally poor and acidic but can be highly varied with regard moisture and texture, including peatlands. The soil improving nature of the pioneer species involved makes this FDT suitable for problem sites.





3. Management objectives:

Economic:	logs / pulp / biomass (optional)
Environmental and social:	High environmental value as habitats, for water retention and soil conservation / improvement. The mixed and natural character of the stands is likely to be attractive for amenity and recreation.

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4. General management principles for the FDT

This FDT is for even-aged stands of BI supplemented by a considerable proportion of native XBSL. Due to their growth pattern and relatively short life expectancy the Q/D approach is not applicable to BI and XBSL. Both components are quite compatible to grow in mixture (CS = 1 or 2). Management of young stands should aim to achieve rapid growth and, where applicable, timber quality. A no thinning approach is possible but will limit management options and achievable target DBH. Growth rates of BI and XBSL peak early in life and diminish rapidly thereafter; respacing and thinning must therefore focus on thicket, pole and small timber stage if sawlog dimensions are to be achieved. Respacing of dense natural regeneration should be used to steer species composition. Thinning should start at 10 – 12m top height, generally as crown thinning. Thinning at later stages should aim to maintain an even canopy cover and steady growth. Clearfell-and-restock or LIMA are the main management scenarios envisaged. On most sites BI and XBSL reproduce easily; opportunities for natural regeneration should therefore be used unless undesirable for timber quality reasons.

5. Timeline

stage	H_{100} [m]	intervention
Establishment		• Natural regeneration in densities of > 3000 seedlings/ha, planting of 2000 – 3000 trees/ha, or direct seeding.
Young stand	< 3	• Protection against animals / plants as necessary. • Respacing if thinning is envisaged and N > 3000 trees/ha at 1 – 2m tree height. Reduce N to 1500 – 2500 trees/ha; in areas of difficult access to 800 – 1200 trees/ha. • Steering of BI / XBSL proportion in natural regeneration, promotion of minor species as required.
Thicket stage	4 – 8	• Generally no interventions, except where respacing in the previous stage has been missed and thinning is envisaged or live crown ratio of dominant trees drops to < 60%. In this case reduce N to 800 – 1500 trees/ha, favouring SBI over DBI and seed-grown trees over coppice.
Pole stage	10 – 12	• Selection of 200 – 300 FC trees/ha (optional), consider pruning of high quality individuals on most productive sites. • First selective crown thinning, mainly removing dominant / co-dominant trees with visible defects, coarse branching or poor shape. Thinning should achieve gaps of > 1m between crowns of adjacent trees.
Pole to small timber stage	12 – 20	• Monitor canopy cover and repeat thinning when gaps close. • Focus on competition status of FC trees (if applicable).
Timber stage		• Monitor stand density, timber quality and health, and thin accordingly. Reduce thinning intensity and / or lengthen thinning cycles as BI / XBSL become less responsive to thinning. • Plan for final harvesting when BI / XBSL approach the end of their life time or target DBH. • Assess potential for natural regeneration – improve conditions if necessary.
Final harvesting and regeneration stage		• Carry out harvesting / restocking operations according to agreed method.