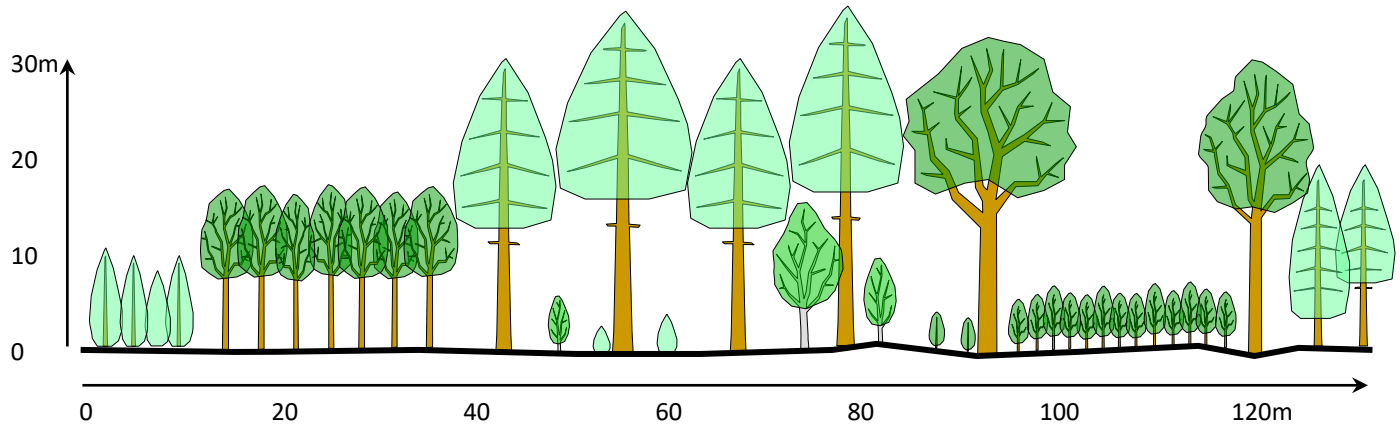
FDT 2.4.4 LA and OK

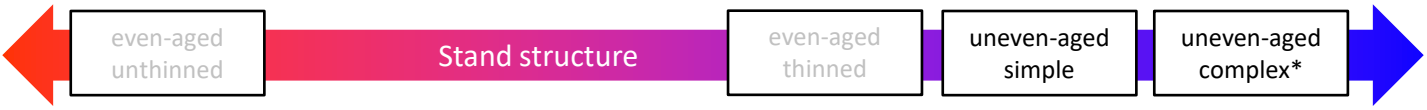


1. Structure and dynamics:

Mosaic of single-storeyed large groups or patches of LA and OK (preferably SOK) of variable age, with individual trees or small groups of category B minor species.

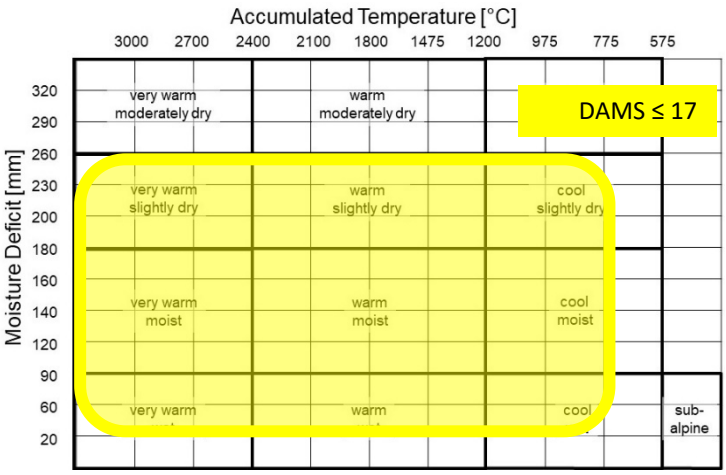
Species distribution: LA 50 – 70% OK: 20 – 40% minor species: 10 – 20%

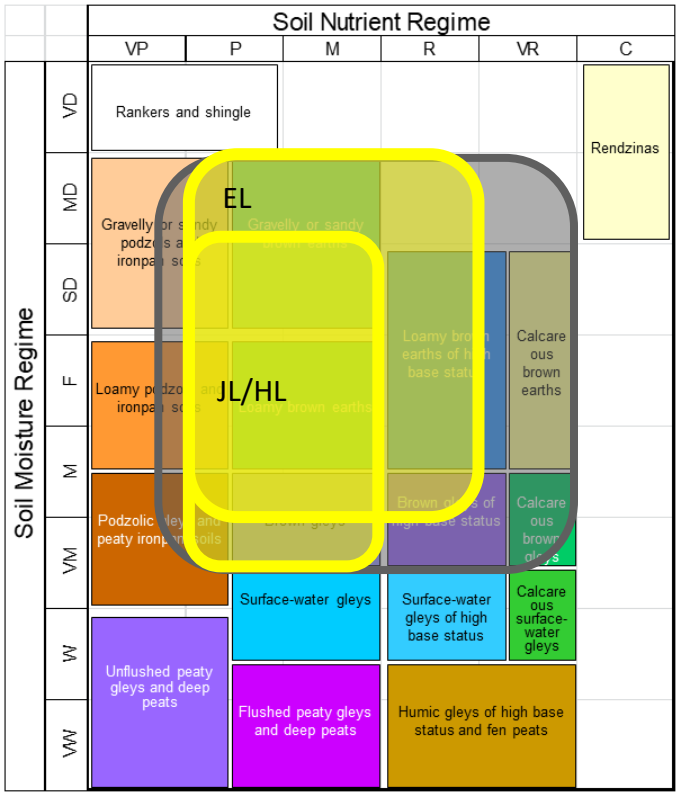
LA and OK will be managed using LIMA with single species cohorts on different rotations. LA should propagate via natural regeneration, OK may be planted if regeneration is insufficient.



2. Ecological suitability:

Contains important elements of NVC types W10, W11, W16 and W17. Similar to FDT 2.1.5 (SP and OK) but appropriate for more fertile sites with loamy soil texture, where LA achieves GYC > 8 and productive OK is also an option. Unsuitable for frost hollows and sites of poor air circulation. A good option to mitigate disease risk for LA.





3. Management objectives:

Economic: LA – sawlogs, target DBH > 60cm in 80 – 120yrs
OK – sawlogs, target DBH > 60cm in 140 – 180yrs

Environmental and social: A good option for sites where timber productivity and biodiversity are both important objectives. OK increases biodiversity and improves soil quality. Attractive stands with a diverse structure, interesting mix of species and autumn colour, providing a good environment for recreation and amenity.

4. General management principles for the FDT

LA and OK are not that compatible (CS = 3) to grow in mixture, so attention to mixture design is required – the faster growth rate of LA must be compensated by deploying the OK in groups or rows. This FDT therefore aims to create a small scale mosaic of more or less even-aged cohorts of LA and OK. Whilst the early peak of growth rate in LA requires early and heavy interventions, timber quality in OK benefits from high initial stocking density and requires careful quality selection during respacing and thinning. Thinning in LA should start at around 10 – 12m top height and focus on pole and small timber stage, thinning in OK may start slightly later once a clean bole of > 6m has been achieved through self-pruning. For both species crown thinning should be applied throughout. Thinning at later stages must aim to maintain tree stability and steady growth. LIMA / CCF methods should be used to introduce and maintain the desired horizontal and vertical stand structure.

5. Timeline

stage	H_{100} [m]	intervention
Establishment		• Planting of 1500 – 2500 (LA) and 5000 – 10000 (OK) trees/ha or natural regeneration. Whilst individual LA may be embedded in a surrounding matrix of OK, OK should be established in patches, large groups or at least in robust clusters of > 25 trees planted at tight spacing.
Young stand	< 3	• Protection against animals / plants as necessary. • LA – systematic respacing if N > 3000 trees/ha at 1 – 2m tree height. • OK – negative selective respacing only (removal of undesirable trees). • Clearing of any damage caused by felling / extraction of overstorey trees. • Regulation of species composition and minor species as required.
Thicket stage	3 – 10	• Generally no interventions, except for: • Negative selective respacing and careful promotion of 150 – 300 FC tree candidates/ha if respacing in the previous stage has been missed.
Pole stage	10 – 12	• First selective crown thinning in LA, mainly removing dominant / co-dominant trees with visible defects, coarse branching or poor shape. • Selection of 100 – 150 FC trees/ha (LA + OK). • Pruning of some LA FC trees may be considered, OK should self-prune.
Pole to small timber stage	12 – 20	• Continue crown thinning at height growth intervals of 3m. Monitor competition between LA and SOK and adjust thinning accordingly. • Thinning in groups of OK should only start when FC trees have developed a sufficiently long clean bole. • Focus on competition status of FC trees and maintain target species composition.
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. Reduce thinning intensity and / or lengthen thinning cycles as LA / OK become less responsive to thinning. • Plan for final harvesting when FC trees approach target DBH. • Decide on LIMA / CCF methods to be used and assess potential for natural regeneration – improve conditions if necessary.
Final harvesting and regeneration stage		• Carry out harvesting / restocking operations according to agreed method. • Follow species specific guidance for LA / OK dominated components. • Monitor light level, ground vegetation, occurrence and growth rate of regeneration, supplement by planting if necessary, or restock.