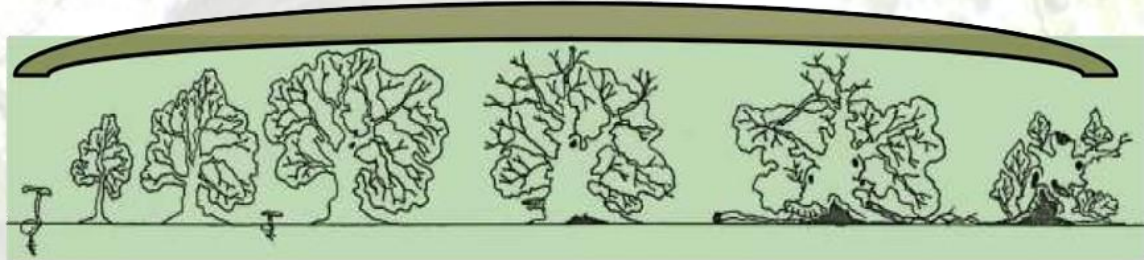




## Life Stages of a Tree



A	B	C	D	E	F	G
YOUNG PHASE		FULL TO LATE MATURE PHASE		ANCIENT PHASE		
MORPHO-PHYSIOLOGICAL EQUIVALENT STAGES (Raimbault, 1995)						
1 - 4		5 - 7		8	9	10
Seed to Early Mature <i>Developmental / Sexual Maturity</i>		Full - Late Mature <i>Expansion / Consolidation</i>		Early Ancient Senescence: <i>Rejuvenation / Decline</i>	Mid Ancient Senescence: <i>Rejuvenation / Decline</i>	Late Ancient Senescence: <i>Rejuvenation / End of Life</i>
A - C		C - D		D - E	E - F	F - G
Current Annual Increment (CAI) increases in volume. Width of rings rises in early years, then reduces and becomes fairly constant.		CAI general trend: CAI tends to constant volume and reducing ring width.		CAI general trend: CAI starts decreasing in volume and ring width. CAI local trend: with successful crown retrenchment CAI may increase in local sectors of the main trunk and around developing functional, cambial columns.	CAI general trend: CAI continues to decrease in volume and ring width. Rings become discontinuous in circumference. CAI local trend: In conditions favourable to juvenescence, CAI resurgence continues about parts of the main trunk, including developing individual trunk columns, particularly where connected to vigorous reiterative growth.	CAI general trend: CAI reduction continues to mortality. Counter trend: CAI may stabilise with minimal sustainable volume and ring width. In favourable conditions, where juvenescence is underway, CAI resurgence continues, including about developing individual functional columns, particularly where connected to vigorous reiterative growth.
Low habitat High vitality Minimal dysfunctional tissue		Growth to peak crown size, fungal colonisation, onset of natural limb loss, increase in dysfunctional conductive tissue, fungal activity from below ground initiates base inner trunk core decay		Onset of crown retrenchment; contraction of live crown, increased lower crown vegetative growth, increased fungal activity, inner trunk and large branch saproxylic habitat, coalescence of decay columns, formation of cambial (functional) columns.	Advanced retrenchment & decline in live crown size & CAI, internal dieback from peripheral shading branch, branch breakage & epicormic response, heart / ripewood decay & hollowing, increased insect, bird & lichen colonization, increase in reiterative growth about crown and trunk, peak saproxylic activity.	Reduced vitality, saproxylic habitat, fungal activity and colonizers transitional towards decomposition and recycling communities, increased root decay & nutrient recycling.  <b>Tree may die or rejuvenate vegetatively (phoenix growth).</b>





### Treework Environmental Practice

#### YOUNG PHASE

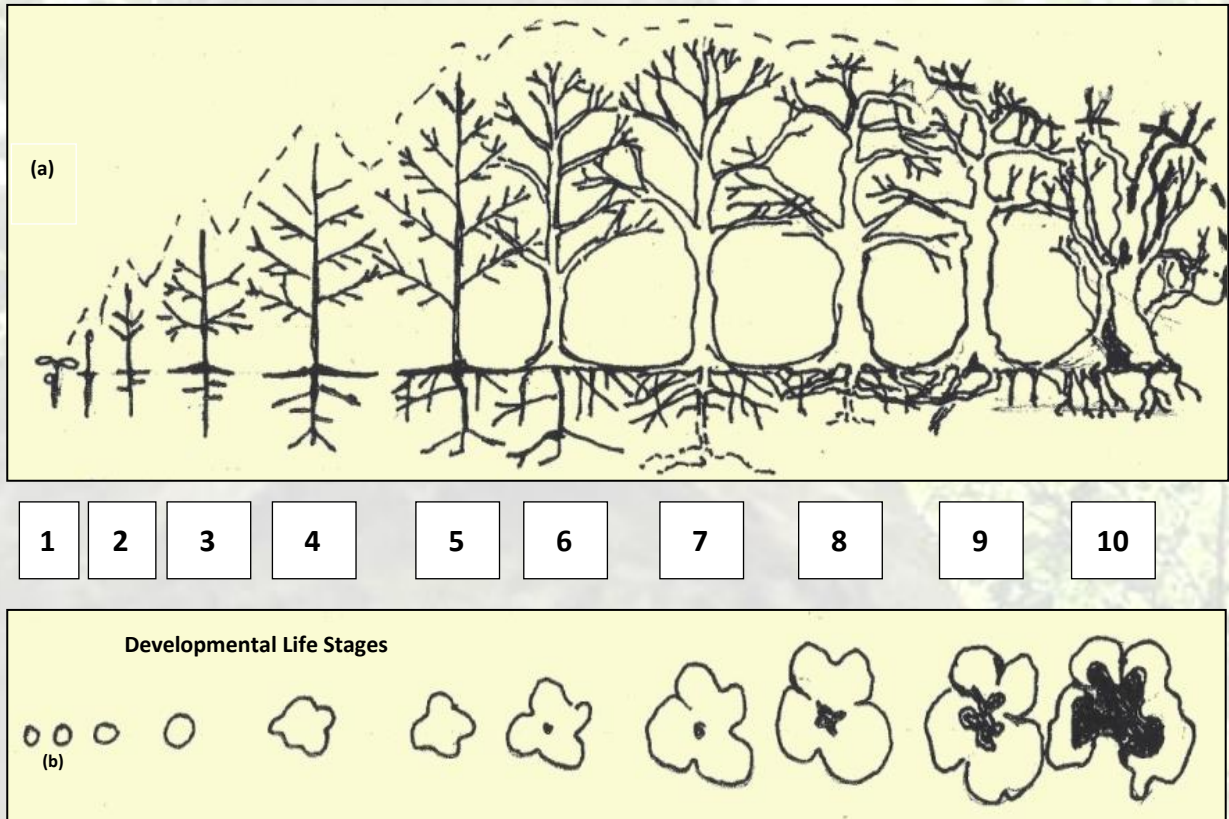
Life Stages 1-4  
Apical dominance

#### MATURE PHASE

Life Stages 5-7  
Lower units break free  
of apical dominance

#### ANCIENT PHASE

Life Stages 8-10  
Early-, mid- & late-ancient  
Crown/root retrenchment, decay,  
hollowing, functional columns and  
reiterative growth



**Fig 2 Morpho-physiological stages of development:** Developmental stages of (a) aerial & root systems through the ageing process corresponding to (b) trunk decay habitat (after Raimbault, 1995; Lonsdale, 1999; Fay, 2002).

**Fig 1: Schematic model of the tree ageing process, with reference also to morpho physiological stages:** Modelled on a *Quercus* species from seedling to senescence with a reference to current annual increment (CAI), development of decay and habitat (veteran) features (Fay & de Berker 1997)

