

Appendix 1 - Derived stand structural parameters and indexes chosen to describe the stand structure.

Kind	Name (abbr.)	Formula	Source
Spatially explicit indices	Clark Evans index	$CE = \frac{\frac{1}{n} \cdot \sum_{i=1}^n r_i}{0.5 \sqrt{10000/N}}$	Clark & Evans (1954)
		where r_i = distance of i -th tree to next neighbour; N = number of trees per ha; n = number of sample trees	
	Contagion index	$W_i = \frac{1}{4} \sum_{j=1}^4 w_j$	von Gadow et al. (1998)
		where $w_j = 1$ if α angle $j < 90^\circ$; $w_j = 0$ otherwise; calculated with 4 nearest neighbours	
	Mingling index	$MI_i = \frac{1}{4} \sum_{j=1}^4 v_{ij}$	von Gadow & Fuldner (1995)
		where $v_{ij} = 0$ in case that neighbour j belongs to the same species and $v_{ij} = 1$ in case that neighbour j belongs not to the same species	
	Diameter differentiation	$T = \frac{1}{n} \sum_{j=1}^n (1 - r_j)$	von Gadow & Fuldner (1995)
		where r_i = (thinner dbh)/(thicker dbh) of tree pair i ; n = number of measured tree pairs	
Indices without explicit spatial relations	Density of living trees	$DE = \frac{n}{a}$	-
		[ha ⁻¹] with: a = area	
	Stand basal area	$BA = \frac{\sum_{i=1}^n d_i^2 \pi / 4}{a}$	-
		[m ² ha ⁻¹] with: d_i = bhd of i -th tree, a = area	
	Volume of living trees (stand)	$Vlt = \frac{\sum_{i=1}^n \left(\frac{d_i^2 \pi}{4} \cdot h_i \cdot f_i \right)}{a}$	-
		[m ³ ha ⁻¹] with: d_i = bhd of i -th tree, h_i = height of i -th tree, f_i = form factor of i -th tree, a = area	
	Shannon index	$H' = - \sum_{i=1}^n \log(p_i) \cdot p_i$	Shannon (1948)
		where p_i = relative abundance of i -th species, N = number of species (log = natural logarithm); a) based on numbers, b) based on basal area	
	Evenness	$J' = \frac{H'}{H'_{max}}$	Pielou (1975)
		where H' = Shannon-Index; H'_{max} = Potential maximum value (= log N [species number]) a) based on numbers, b) based on basal area	
	Simpson index	$D' = \sum_{i=1}^N (1 - p_i) \cdot p_i$	Simpson (1949)
		where p_i = relative abundance of the i -th species; N = number of species a) based on numbers, b) based on basal area	

References

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