

### Appendix 3 – Table Structural variables, kurtosis and correlations

Table S3.1. Structural variables considered in this work and selection criteria. Kurtosis values lower than 1 are reported in bold, as well as p-value indicating significant difference ( $p < 0.05$ ) between medians. W = Wilcoxon test (equivalent to Mann-Whitney). Source of complexity: VH = Vertical heterogeneity, CH = Composition heterogeneity, UA = Uneven-agedness, LLT = Occurrence of large living trees, GS = High growing stock, DW-TOT = Occurrence of a relatively high deadwood volume, DW-DC = Occurrence of deadwood in different decay classes, DW-ST = Occurrence of standing deadwood, dead trees and snags. Sampling efficiency: 1 – poor, 2 – medium, 3 – high. Core structural variables are highlighted.

Structural indicators	Kurtosis	Medians		Function as a surrogate		Source of complexity	Sampling Efficiency (1, poor; 2, medium; 3, high)	
		<100 ys.	> 100 ys.	W	p			(significant correlates with $\rho > 0.5$ )
1 Basal area	<b>0.15</b>	40.75	40.62	544	0.501	Living volume (0.53)	GS	3
2 Living volume	<b>0.23</b>	421.17	524.38	330	<b>0.025</b>	Basal Area (0.53); n° DBH classes (0.53); n° trees DBH > 40 cm (0.68); Height (0.67); Density of standing deadwood (-0.52)	GS	1
3 n° DBH classes	<b>-0.62</b>	7	9	292.5	<b>0.006</b>	Living volume (0.53); n° trees DBH > 40 cm (0.69); DBH range (0.68); Height (0.56)	UA, GS, LLT	3
4 DBH diversity (Gini index)	<b>-0.81</b>	0.6	0.72	575	0.273	Living stem density (-0.64), Quadratic mean DBH (0.71)	UA	2
5 n° trees DBH > 40 cm	<b>-0.11</b>	1	6.5	186	<b>0</b>	Living volume (0.66); DBH range (0.66); Height (0.78); Density of standing deadwood (-0.55)	LLT	3
6 DBH range	2.91	39.5	57	246.5	<b>0.001</b>	n° DBH classes (0.68); n° trees DBH > 40 cm (0.66)	GS, UA	3
7 Living stem density	19.47	2163.39	1910.48	571	0.298	Quadratic mean DBH (-0.96), DBH diversity (Gini index) (-0.64)	TS	3
8 Tree species richness	2.92	2	1	573.5	0.229	-	CH	3
9 Quadratic mean DBH	<b>0.88</b>	15	17.05	440.5	0.469	Living stem density (-0.96), DBH diversity (Gini index) (0.71)	UA, LLT	2
10 Height	<b>-0.39</b>	21.33	28.88	190	<b>0</b>	Living volume (0.68); n° DBH classes (0.56); n° trees DBH > 40 cm (0.78)	GS, UA, VH, DW-ST	3
11 Height standard deviation	<b>-0.34</b>	3.53	5.47	321	<b>0.018</b>	-	VH	3

Structural indicators	Kurtosis	Medians		W	p	Function as a surrogate (significant correlates with rho>0.5)	Source of complexity	Sampling Efficiency (1, poor; 3, good)
		<100 ys.	> 100 ys.					
12 Snags volume	38.67	6.25	0	697	<b>0.002</b>	Total Standing deadwood (0.69); Density of standing deadwood (0.59); Basal area of standing deadwood (0.68); Dead/Living wood ratio (0.50)	DW-ST, DW-TOT	1
13 Standing dead trees volume	<b>-0.18</b>	5.5	1.95	600	0.137	Total Standing deadwood (0.85); Total deadwood (0.65); Density of standing deadwood (0.87); Basal area of standing deadwood (0.86); Dead/Living wood ratio (0.65)	DW-ST, DW-TOT	1
14 Total Standing deadwood	10.49	20.7	5.5	655.5	<b>0.025</b>	Snags volume (0.69); Standing dead trees volume (0.85); Total deadwood (0.77); Density of standing deadwood (0.85); Basal area of standing deadwood (0.98); Dead/Living wood ratio (0.78)	DW-ST, DW-TOT	1
15 Stumps volume	8.14	0	0	430	0.17	-	DW-TOT	2
16 Lying CWD Volume	19.59	0.35	0.7	442.5	0.476	n° decay classes (0.69); CWD index (0.85); Total log lenght (0.91)	DW-TOT, DW-DC	1
17 Total deadwood	6.31	22.15	21.4	526.5	0.662	Standing dead trees volume (0.65); Total Standing deadwood (0.77); Density of standing deadwood (0.59); Basal area of standing deadwood (0.73); Dead/Living wood ratio (0.96)	DW-TOT, DW-ST	1
18 Density of standing deadwood	5.09	206.9	27.85	359	0.067	Living volume (-0.52), n° trees DBH> 40 cm (-0.53); Snags volume (0.66); Standing dead trees volume (0.88); Total Standing deadwood (0.90); Total deadwood (0.59); Basal area of standing deadwood (0.89); Dead/Living wood ratio (0.63)	DW-ST, DW-TOT	3
19 Basal area of standing deadwood	3.87	1.34	0.2	323.5	<b>0.018</b>	Height(-0.50); Snags volume (0.68); Standing dead trees volume (0.86); Total Standing deadwood (0.98); Total deadwood (0.73); Density of standing deadwood (0.89); Dead/Living wood ratio (0.76)	DW-ST, DW-TOT	3
20 n° decay classes	<b>0.26</b>	1	1	480	0.847	Lying CWD Volume (0.69); CWD index (0.75); Total log lenght (0.71)	DW-DC	2
21 Dead/Living wood ratio	45.06	0.06	0.04	550	0.448	Snags volume (0.50); Standing dead trees volume (0.65); Total Standing deadwood (0.78); Total deadwood (0.96); Density of standing deadwood (0.63); Basal area of standing deadwood (0.76)	DW-TOT	1
22 CWD index	<b>-0.99</b>	2	2	516.5	0.754	Lying CWD Volume (0.85); n° decay classes (0.75); Total log lenght (0.86)	DW-DC	1
23 Total log lenght	35.1	107.5	101	474.5	0.791	Lying CWD Volume (0.91); n° decay classes (0.71); CWD index (0.86)	DW-TOT, DW-	3

Structural indicators	Kurtosis	Medians		W	p	Function as a surrogate (significant correlates with rho>0.5)	Source of complexity	Sampling Efficiency (1, poor; 3, good)
		<100 ys.	> 100 ys.					
							DC	
24 In DBH diversity (Gini index)	4.7	-0.33	-0.51	575	0.273		UA	3
25 In DBH range	<b>0.94</b>	3.7	4.06	246.5	<b>0.001</b>		UA	3
26 In stem density	<b>-0.6</b>	7.67	7.56	571	0.298		SM	3
27 In Tree species richness	<b>0.17</b>	1.1	0.69	573.5	0.229		CH	3
28 In Snags volume	<b>-0.18</b>	1.98	0	697	<b>0.002</b>		DW-ST, DW-TOT	1
29 In Total Standing deadwood	<b>-1.4</b>	3.07	1.87	655.5	<b>0.025</b>		DW-ST, DW-TOT	1
30 In stumps volume	2.72	0	0	430	0.17		DW-ST, DW-TOT	2
31 In lying CWD	4.69	0.59	0.82	442.5	0.476		DW-TOT, DW-DC	1
32 In total deadwood	<b>-0.38</b>	3.13	3.11	526.5	0.662		DW-TOT	1
33 In density of standing deadwood	<b>-1.55</b>	5.34	3.35	359	0.061		DW-ST, DW-TOT	3
34 In basal area of standing deadwood	<b>-0.31</b>	0.85	0.18	323.5	<b>0.018</b>		DW-ST	3
35 In Dead/living wood	31.86	0.05	0.04	550	0.448		DW-TOT	1
36 In total log length	<b>-1.41</b>	4.67	4.62	474.5	0.791		DW-TOT, DW-DC	3
37 √ DBH diversity (Gini index)	<b>0.54</b>	0.77	0.84	575	0.273		UA	3
38 √ DBH range	<b>0.55</b>	6.28	7.55	246.5	<b>0.001</b>		UA	3
39 √ stem density	<b>3.33</b>	46.44	43.7	571	0.298		SM	3
40 √ Tree species richness	<b>0.75</b>	1.41	1	573.5	0.229		CH	3
41 √ Snags volume	<b>7.75</b>	2.5	0	697	<b>0.002</b>		DW-ST, DW-	1

Structural indicators	Kurtosis	Medians		W	p	Function as a surrogate (significant correlates with rho>0.5)	Source of complexity	Sampling Efficiency (1, poor; 3, good)
		<100 ys.	> 100 ys.					
42 √ Total Standing deadwood	<b>0.1</b>	4.55	2.35	655.5	<b>0.025</b>	TOT DW-ST, DW-TOT		1
43 √ stumps volume	4.05	0	0	430	0.17	DW-ST, DW-TOT		2
44 √ lying CWD	<b>4.69</b>	0.59	0.82	442.5	0.476	DW-TOT, DW-DC		1
45 √ total deadwood	<b>0.04</b>	4.7	4.63	526.5	0.662	DW-TOT		1
46 √ density of standing deadwood	<b>0.18</b>	14.38	5.26	359	<b>0.061</b>	DW-ST		3
47 √ basal area of standing deadwood	<b>-0.09</b>	1.15	0.45	323.5	<b>0.018</b>	DW-ST, DW-TOT		3
48 √ Dead/living wood	12.75	0.23	0.2	550	0.448	DW-TOT		1
49 √ total log lenght	<b>10.11</b>	10.33	10.05	474.5	0.791	DW-TOT, DW-DC		3