

Supplementary Material.

Appendix S1. Ordinations of vegetation data using (i) frequency data (S1.1); (ii) presence / absence data (in place of BA data; S1.2); and (iii) BA data with values for *Cyathea medullaris* and *Kunzea robusta* removed (S1.3).

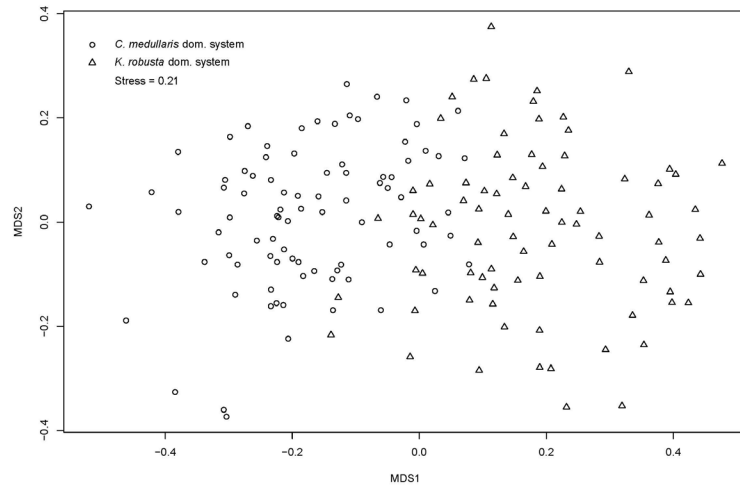


Figure S1.1. nMDS ordination of the vegetation data using frequency data; stress on the ordination is 0.21. PERMANOVA F_{1-164} : 29.12, $P < 0.001$ ***

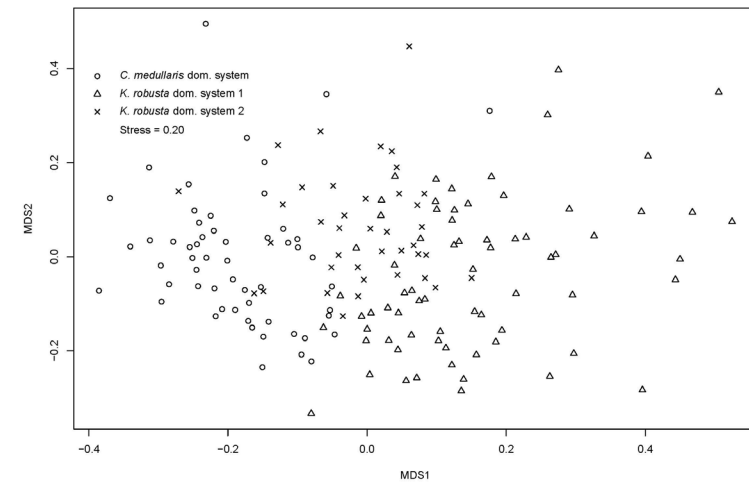


Figure S1.2. nMDS ordination of the vegetation data using presence absence data; stress on the ordination is 0.20. PERMANOVA F_{1-164} : 12.22, $P < 0.001$ ***

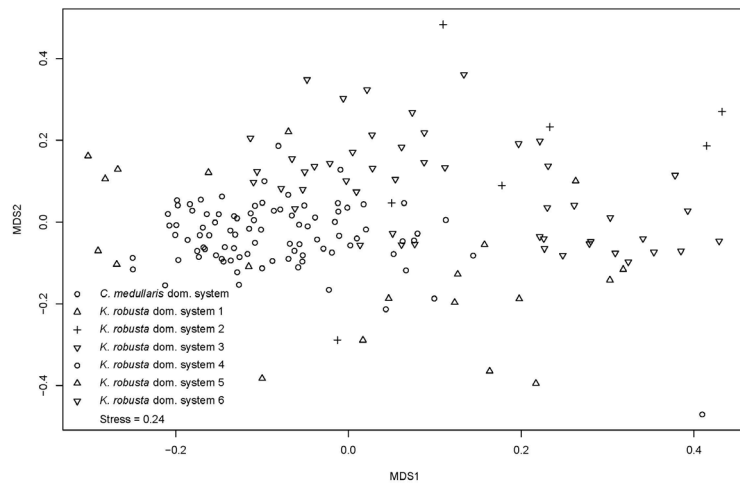


Figure S1.3. nMDS ordination of the vegetation data using BA data with *C. medullaris* and *K. robusta* data removed; stress on the ordination is 0.24.

Appendix S2. Indicator species of *Cyathea medullaris* / *Cyathea dealbata* and *Kunzea robusta* / *Cyathea dealbata* forests in both tree / sapling data and seedling data (species grouped in the table by position in forest and/or taxa: canopy, subcanopy and tree fern). The predictive value (Pred. Val.) is the probability that any vegetation plot belongs to the successional community given the presence of this species (an indicator species). Sensitivity (Sens.) is the probability of finding the species in vegetation plots belonging to the successional community. The final two columns of figures state the strength and significance of the association of each species with the successional community.

<i>Cyathea medullaris</i> / <i>Cyathea dealbata</i> Forest					<i>Kunzea robusta</i> / <i>Cyathea dealbata</i> Forest				
Species	Pred. value	Sensitivity	Stat	Sig. value	Species	Pred. value	Sensitivity	Stat	Sig. value
Tree and sapling data									
<i>Hedycarya arborea</i>	0.949	0.763	0.851	0.001 ***	<i>Myrsine australis</i>	0.665	0.785	0.723	0.019 *
<i>Olearia rani</i>	0.890	0.508	0.673	0.001 ***	<i>Coprosma arborea</i>	0.877	0.486	0.653	0.009 **
<i>Beilschmiedia tawa</i>	0.985	0.356	0.592	0.001 ***	<i>Phyllocladus trichomanoides</i>	0.910	0.458	0.646	0.001 ***
<i>Dysoxylum spectabile</i>	0.945	0.390	0.607	0.001 ***	<i>Agathis australis</i>	0.910	0.280	0.505	0.008 **
<i>Knightia excelsa</i>	0.719	0.593	0.653	0.001 ***	<i>Kunzea robusta</i>	0.945	1.000	0.972	0.001 ***
<i>Beilschmiedia tarairi</i>	0.904	0.237	0.463	0.002 **	<i>Leucopogon fasciculatus</i>	0.890	0.692	0.784	0.001 ***
<i>Vitex lucens</i>	0.949	0.203	0.439	0.015 *	<i>Coprosma rhamnoides</i>	0.941	0.589	0.744	0.001 ***
<i>Corynocarpus laevigatus</i>	0.841	0.186	0.396	0.045 *	<i>Leptospermum scoparium</i>	0.864	0.458	0.629	0.001 ***
<i>Laurelia novae-zelandiae</i>	0.773	0.102	0.280	0.037 *	<i>Olearia furfuracea</i>	0.995	0.280	0.528	0.001 ***
<i>Melicytus ramiflorus</i>	0.850	0.949	0.898	0.001 ***	<i>Coprosma spathulata</i>	0.976	0.206	0.448	0.034 *
<i>Rhopalostylis sapida</i>	0.902	0.644	0.762	0.001 ***					
<i>Coprosma grandifolia</i>	0.873	0.627	0.740	0.001 ***					
<i>Schefflera digitata</i>	0.988	0.407	0.634	0.001 ***					
<i>Brachyglottis repanda</i>	0.864	0.322	0.528	0.001 ***					
<i>Hoheria populnea</i>	0.851	0.186	0.398	0.026 *					
<i>Griselinia lucida</i>	0.998	0.102	0.319	0.005 **					
<i>Piper excelsum</i>	1.000	0.068	0.260	0.016 *					
<i>Rhabdothamnus solandri</i>	1.000	0.068	0.260	0.011 *					
<i>Cyathea medullaris</i>	0.961	0.932	0.947	0.001 ***					
<i>Cyathea dealbata</i>	0.735	0.983	0.850	0.001 ***					
<i>Dicksonia squarrosa</i>	0.914	0.576	0.726	0.001 ***					
<i>Cyathea smithii</i>	1.000	0.169	0.412	0.001 ***					
Seedling data									
<i>Hedycarya arborea</i>	0.817	0.661	0.735	0.001 ***	<i>Phyllocladus trichomanoides</i>	0.965	0.336	0.570	0.001 ***
<i>Knightia excelsa</i>	0.765	0.423	0.569	0.002 **	<i>Coprosma arborea</i>	0.930	0.346	0.567	0.001 ***
<i>Dysoxylum spectabile</i>	0.750	0.254	0.437	0.016 *	<i>Kunzea robusta</i>	0.953	0.290	0.525	0.001 ***
<i>Prumnopitys ferruginea</i>	0.820	0.203	0.409	0.016 *	<i>Agathis australis</i>	0.920	0.150	0.371	0.030 *
<i>Beilschmiedia tawa</i>	0.702	0.237	0.408	0.010 **	<i>Coprosma rhamnoides</i>	0.894	0.766	0.828	0.001 ***
<i>Laurelia novae-zelandiae</i>	1.000	0.119	0.344	0.001 ***	<i>Leucopogon fasciculatus</i>	0.870	0.505	0.662	0.001 ***
<i>Rhopalostylis sapida</i>	0.830	0.797	0.813	0.001 ***	<i>Olearia furfuracea</i>	0.982	0.280	0.525	0.002 **
<i>Melicytus ramiflorus</i>	0.664	0.644	0.654	0.002 **	<i>Coprosma spathulata</i>	0.968	0.262	0.503	0.020 *
<i>Geniostoma ligustrifolium</i>	0.784	0.458	0.599	0.010 **	<i>Leptospermum scoparium</i>	0.980	0.150	0.383	0.025 *
<i>Coprosma grandifolia</i>	0.712	0.424	0.549	0.001 ***	<i>Ulex europaeus</i>	0.891	0.150	0.365	0.037 *

Seedling data continued

<i>Schefflera digitata</i>	0.944	0.254	0.490	0.001 ***	<i>Leptecophylla juniperina</i>	1.000	0.102	0.321	0.019 *
<i>Hoheria populnea</i>	0.906	0.153	0.372	0.011 *	<i>Cyathea dealbata</i>	0.806	0.692	0.746	0.002 **
<i>Brachyglottis repanda</i>	0.901	0.153	0.371	0.003 **					
<i>Ripogonon scandens</i>	1.000	0.119	0.344	0.002 **					
<i>Freycinetia banksii</i>	0.921	0.102	0.306	0.007 **					
<i>Piper excelsum</i>	1.000	0.068	0.260	0.014 *					
<i>Dicksonia squarrosa</i>	0.634	0.288	0.427	0.017 *					