**Supplementary Information for:**

Carbon fractions in the world's dead wood

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**Supplementary Table 1.** Analysis of variance (ANOVA) evaluating dead wood carbon fractions (CF) as a function of primary factors and all two-way interactions. Sample size for ANOVA model is $n$=973, and significant factors are highlighted in bold (where $p \leq 0.05$).

| Factor | D.f. | Sum Sq. | Mean Sq. | *F* value | *p* |
|---|---|---|---|---|---|
| **Biome** | **3** | **1967** | **655.6** | **114.8** | **<0.001** |
| **Division** | **1** | **1120** | **1119.7** | **196.0** | **<0.001** |
| **Tissue type** | **4** | **636** | **158.9** | **27.8** | **<0.001** |
| Position | 1 | 9 | 9.2 | 1.6 | 0.205 |
| **DC** | **4** | **202** | **50.6** | **8.9** | **<0.001** |
| **Biome * division** | **2** | **180** | **89.9** | **15.7** | **<0.001** |
| **Biome * tissue** | **5** | **150** | **30.1** | **5.3** | **<0.001** |
| Biome * position | 3 | 16 | 5.3 | 0.9 | 0.423 |
| **Biome * DC** | **12** | **674** | **56.2** | **9.8** | **<0.001** |
| **Division*** tissue | 3 | 19 | 6.4 | 1.1 | 0.343 |
| **Division*** position | 1 | 0 | 0.1 | 0.02 | 0.885 |
| **Division*** DC | 4 | 13 | 3.2 | 0.6 | 0.691 |
| **Tissue * position** | **2** | **62** | **30.9** | **5.4** | **0.005** |
| Tissue * DC | 13 | 40 | 3.1 | 0.5 | 0.899 |
| Position * DC | 4 | 17 | 4.4 | 0.8 | 0.55 |
| Residuals | 910 | 5199 | 5.7 | | |

**Supplementary Table 2.** Variance partitioning of dead wood carbon fractions (CF) in trees across six nested factors. Variance components are based on the method developed by Messier et al. (2010), with lower and upper 95% confidence limits generated through bootstrapping. Results are presented for two different nested structures.

| Dataset | Factor | Variance explained | Lower C.I. | Upper C.I. |
|---|---|---|---|---|
| Full dataset with decay class nested within position. | Biome | 0.23 | 0.161 | 0.303 |
| | Division | 0.076 | 0.033 | 0.141 |
| | Tissue | 0.189 | 0.078 | 0.279 |
| | Position | 0.002 | 0.0 | 0.047 |
| | Decay class | 0.088 | 0.054 | 0.223 |
| | Unexplained | 0.414 | 0.285 | 0.458 |
| Full dataset with position nested within decay class. | Biome | 0.228 | 0.155 | 0.302 |
| | Division | 0.070 | 0.03 | 0.131 |
| | Tissue | 0.181 | 0.071 | 0.273 |
| | Decay class | 0.083 | 0.0 | 0.225 |
| | Position | 0.022 | 0.01 | 0.183 |
| | Unexplained | 0.417 | 0.28 | 0.471 |

**Supplementary Table 3.** Analysis of variance for five separate mixed-effects models, predicting dead wood carbon fractions (CFs) as a function of five different factors. The models presented here form the basis of the least squares mean CF values presented in Table 1 and Figure 2 of the main text.

| Model | Sum Sq. | Mean Sq. | Num. D.F. | Den. D.F. | *F* | Model *p* |
|---|---|---|---|---|---|---|
| Biome | 542.34 | 180.78 | 3 | 928.1 | 28.314 | <0.001 |
| Division | 583.54 | 583.54 | 1 | 937.29 | 101.38 | <0.001 |
| Tissue | 301.63 | 75.407 | 4 | 932.01 | 13.029 | <0.001 |
| Position | 22.1 | 22.1 | 1 | 924.59 | 3.9779 | 0.046 |
| Decay class | 180.79 | 45.197 | 4 | 953.25 | 7.2932 | <0.001 |

**Supplementary Table 4.** Species-specific sample sizes for dead wood CF observations across decay classes (DCs). Highlight in bold are species with dead wood CF data for at least four DCs, which were then included in subsequent analyses on dead wood CF changes through decomposition (see Figure 3 in main text, and Supplementary Table 5).

| | Sample Sizes | | | | | |
|---|---|---|---|---|---|---|
| **Species** | **DC 1** | **DC 2** | **DC 3** | **DC 4** | **DC 5** | **Total** |
| ***Abies alba*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Abies amabilis* | 2 | 2 | 0 | 0 | 0 | 4 |
| ***Abies balsamea*** | **3** | **2** | **3** | **1** | **3** | **12** |
| ***Abies concolor*** | **6** | **4** | **4** | **4** | **4** | **22** |
| *Abies grandis* | 2 | 2 | 2 | 0 | 0 | 6 |
| ***Abies lasiocarpa*** | **6** | **2** | **3** | **1** | **1** | **13** |
| ***Abies magnifica*** | **5** | **5** | **2** | **4** | **2** | **18** |
| *Abies procera* | 0 | 2 | 2 | 2 | 0 | 6 |
| *Acacia auriculaeformis* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Acacia polyphylla* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Acer rubrum* | 2 | 2 | 1 | 0 | 0 | 5 |
| *Albizia polycephala* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Allophylus edulis* | 1 | 0 | 0 | 0 | 0 | 1 |
| ***Alnus glutinosa*** | **1** | **1** | **1** | **1** | **1** | **5** |
| ***Alnus incana*** | **1** | **1** | **1** | **1** | **1** | **5** |
| ***Alnus rubra*** | **4** | **4** | **2** | **2** | **1** | **13** |
| ***Altingia gracilipes*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Anadenanthera peregrina var falcata* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Aphanamixis polystachya* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Aspidosperma polyneuron* | 0 | 0 | 1 | 0 | 0 | 1 |
| ***Betula papyrifera*** | **1** | **2** | **2** | **1** | **2** | **8** |
| ***Betula pendata*** | **4** | **4** | **4** | **4** | **2** | **18** |
| ***Betula pendula*** | **4** | **4** | **4** | **4** | **4** | **20** |
| ***Betula pubescens*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Brosimum alicastrum* | 0 | 1 | 1 | 1 | 0 | 3 |
| ***Bursera simaruba*** | **2** | **2** | **2** | **2** | **0** | **8** |
| ***Calocedrus decurrens*** | **2** | **4** | **4** | **3** | **2** | **15** |
| *Carallia brachiate* | 1 | 0 | 0 | 0 | 0 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Carya alba* | 2 | 2 | 2 | 0 | 0 | 6 |
| ***Carya* sp.** | **0** | **2** | **1** | **1** | **1** | **5** |
| ***Castanopsis carlesii*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Castanopsis chinensis* | 1 | 2 | 1 | 0 | 0 | 4 |
| ***Castanopsis faberi*** | **0** | **1** | **1** | **1** | **1** | **4** |
| ***Cecropia obtusifolia*** | **2** | **1** | **1** | **1** | **0** | **5** |
| *Centrolobium tomentosum* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Cestrum* sp. | 1 | 0 | 0 | 0 | 0 | 1 |
| ***Chamaecyparis japonica*** | **1** | **1** | **1** | **1** | **0** | **4** |
| ***Chamaecyparis obtusa*** | **1** | **1** | **1** | **1** | **0** | **4** |
| ***Cinnamomum chekiangense*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Copaifera langsdorffii* | 0 | 0 | 1 | 0 | 0 | 1 |
| ***Croton floribundus*** | **0** | **1** | **1** | **1** | **1** | **4** |
| *Cryptocarya concinna* | 1 | 2 | 1 | 0 | 0 | 4 |
| *Cupania vernalis* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Dalbergia glomerata* | 2 | 0 | 2 | 0 | 0 | 4 |
| *Dendropanax arboreus* | 0 | 1 | 1 | 0 | 0 | 2 |
| *Dialium guineense* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Esenbeckia leiocarpa* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Fagus crenata* | 0 | 41 | 0 | 0 | 0 | 41 |
| *Fagus grandifolia* | 2 | 2 | 1 | 0 | 0 | 5 |
| ***Fagus sylvatica*** | **3** | **3** | **3** | **3** | **1** | **13** |
| *Ficus yoponensis* | 2 | 0 | 2 | 0 | 0 | 4 |
| ***Heliocarpus appendiculatus*** | **2** | **1** | **1** | **1** | **0** | **5** |
| *Inga striata* | 0 | 0 | 1 | 0 | 0 | 1 |
| ***Larix sibirica*** | **4** | **4** | **4** | **2** | **2** | **16** |
| *Liquidambar styraciflua* | 2 | 2 | 2 | 0 | 0 | 6 |
| ***Liriodendron tulipifera*** | **4** | **4** | **2** | **1** | **0** | **11** |
| *Luehea divaricata* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Machaerium brasiliense* | 0 | 0 | 1 | 0 | 0 | 1 |
| ***Magnolia odora*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Manilkara zapota* | 2 | 0 | 2 | 0 | 0 | 4 |
| *Matayba elaeagnoides* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Melicoccus oliviformis* | 0 | 1 | 1 | 0 | 0 | 2 |
| *Myrcianthes fragrans* | 0 | 1 | 1 | 0 | 0 | 2 |
| ***Nectandra ambigens*** | **2** | **1** | **1** | **1** | **0** | **5** |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Nectandra globosa* | 0 | 1 | 0 | 1 | 0 | 2 |
| *Nectandra lanceolata* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Nectandra megapotamica* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Nothofagus antarctica* | 0 | 4 | 0 | 0 | 0 | 4 |
| *Nothofagus betuloides* | 0 | 4 | 0 | 0 | 0 | 4 |
| *Nothofagus pumilio* | 0 | 4 | 0 | 0 | 0 | 4 |
| ***Ocotea* sp.** | **0** | **1** | **1** | **1** | **1** | **4** |
| *Orthion oblanceolatum* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Parapiptadenia rigida* | 1 | 0 | 0 | 0 | 0 | 1 |
| ***Picea abies*** | **21** | **17** | **15** | **15** | **10** | **78** |
| *Picea engelmannii* | 2 | 0 | 1 | 1 | 0 | 4 |
| ***Picea lutzii*** | **4** | **4** | **4** | **2** | **2** | **16** |
| ***Picea sitchensis*** | **2** | **2** | **2** | **2** | **2** | **10** |
| ***Picea* sp.** | **0** | **1** | **1** | **1** | **1** | **4** |
| ***Pinus armandi*** | **1** | **1** | **1** | **1** | **1** | **5** |
| ***Pinus banksiana*** | **5** | **6** | **6** | **3** | **2** | **22** |
| ***Pinus contorta*** | **6** | **4** | **5** | **1** | **1** | **17** |
| ***Pinus echinata*** | **2** | **4** | **2** | **1** | **0** | **9** |
| ***Pinus jeffreyi*** | **2** | **2** | **1** | **1** | **0** | **6** |
| ***Pinus lambertiana*** | **4** | **4** | **4** | **4** | **2** | **18** |
| *Pinus monticola* | 2 | 2 | 2 | 0 | 0 | 6 |
| ***Pinus ponderosa*** | **4** | **4** | **4** | **4** | **4** | **20** |
| *Pinus radiata* | 6 | 6 | 3 | 0 | 0 | 15 |
| ***Pinus resinosa*** | **4** | **1** | **5** | **2** | **4** | **16** |
| ***Pinus siberica*** | **4** | **4** | **2** | **2** | **2** | **14** |
| ***Pinus sylvestris*** | **10** | **10** | **7** | **7** | **4** | **38** |
| ***Pinus taeda*** | **4** | **4** | **3** | **2** | **1** | **14** |
| *Piptadenia gonoacantha* | 0 | 0 | 1 | 1 | 0 | 2 |
| *Piptocarpha sellowii* | 0 | 0 | 1 | 0 | 0 | 1 |
| ***Populus tremula*** | **1** | **1** | **1** | **1** | **1** | **5** |
| *Populus tremula x Populus tremuloides* | 1 | 0 | 0 | 0 | 0 | 1 |
| ***Populus tremuloides*** | **5** | **6** | **6** | **3** | **2** | **22** |
| *Prunus brasiliensis* | 1 | 0 | 0 | 0 | 0 | 1 |
| ***Pseudolmedia glabrata*** | **2** | **2** | **2** | **2** | **2** | **10** |
| ***Pseudotsuga menziesii*** | **9** | **6** | **9** | **8** | **8** | **40** |
| *Qualea* sp. | 0 | 0 | 1 | 0 | 0 | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Quercus crispula* | 0 | 38 | 0 | 0 | 0 | 38 |
| ***Quercus alba*** | **2** | **2** | **2** | **1** | **0** | **7** |
| ***Quercus aliena var acuteserrata*** | **1** | **1** | **1** | **1** | **1** | **5** |
| ***Quercus rubra*** | **2** | **2** | **2** | **1** | **0** | **7** |
| *Quercus species* | 0 | 0 | 1 | 1 | 0 | 2 |
| ***Quercus velutina*** | **2** | **1** | **6** | **4** | **5** | **18** |
| ***Sabal* sp.** | **2** | **2** | **2** | **2** | **0** | **8** |
| *Savia dictyocarpa* | 0 | 0 | 1 | 1 | 0 | 2 |
| *Schefflera heptaphylla* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Schima superba* | 1 | 2 | 1 | 0 | 0 | 4 |
| *Sciadopitys verticillata* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Sideroxylon portoricense subsp minutiflorum* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Simarouba amara* | 2 | 2 | 0 | 1 | 0 | 5 |
| *Swartzia cubensis* | 2 | 2 | 2 | 0 | 0 | 6 |
| *Swietenia macrophylla* | 0 | 2 | 2 | 0 | 0 | 4 |
| *Tapirira guianensis* | 0 | 1 | 1 | 1 | 0 | 3 |
| ***Thuja plicata*** | **4** | **4** | **4** | **3** | **3** | **18** |
| ***Tsuga heterophylla*** | **8** | **8** | **8** | **8** | **2** | **34** |
| *Vitex megapotamica* | 1 | 0 | 0 | 0 | 0 | 1 |
| *Vochysia tucanorum* | 0 | 0 | 1 | 0 | 0 | 1 |
| *Zanthoxylum rhoifolium* | 1 | 0 | 0 | 0 | 0 | 1 |

**Supplementary Table 5.** Model parameters describing species-specific changes in dead wood CFs as a function of decay class (DC). Models are presented graphically in Figure 3. Only species with wood CF from at least four decay classes are included in the analyses presented here (highlighted in Supplementary Table 4).

| Species characteristics | | | Intercept | | | Slope | | |
|---|---|---|---|---|---|---|---|---|
| **Species** | **Division** | **Biome** | **Estimate** | **S.E.** | ***p*-value** | **Estimate** | **S.E.** | ***p*-value** |
| *Alnus glutinosa* | Ang. | Boreal | 48.76 | 2.60 | <0.001 | 0.26 | 0.66 | 0.68 |
| *Alnus incana* | Ang. | Boreal | 46.97 | 2.60 | <0.001 | 0.72 | 0.66 | 0.27 |
| *Betula papyrifera* | Ang. | Boreal | 49.45 | 2.30 | <0.001 | 0.16 | 0.55 | 0.76 |
| *Betula pendata* | Ang. | Boreal | 44.46 | 1.78 | <0.001 | 1.16 | 0.38 | <0.001 |
| *Betula pendula* | Ang. | Boreal | 48.53 | 1.74 | <0.001 | 0.33 | 0.33 | 0.31 |
| *Betula pubescens* | Ang. | Boreal | 46.17 | 2.60 | <0.001 | 0.70 | 0.66 | 0.29 |
| *Populus tremula* | Ang. | Boreal | 48.08 | 2.60 | <0.001 | 0.03 | 0.66 | 0.95 |
| *Populus tremuloides* | Ang. | Boreal | 49.20 | 1.63 | <0.001 | -0.03 | 0.38 | 0.92 |
| *Abies balsamea* | Con. | Boreal | 50.12 | 1.88 | <0.001 | 0.13 | 0.40 | 0.75 |
| *Larix sibirica* | Con. | Boreal | 51.78 | 1.78 | <0.001 | -0.90 | 0.40 | 0.02 |
| *Picea abies* | Con. | Boreal | 48.87 | 1.42 | <0.001 | 0.07 | 0.17 | 0.65 |
| *Picea* sp. | Con. | Boreal | 48.41 | 3.73 | <0.001 | 0.74 | 0.94 | 0.43 |
| *Pinus banksiana* | Con. | Boreal | 50.25 | 1.70 | <0.001 | 0.41 | 0.37 | 0.26 |
| *Pinus siberica* | Con. | Boreal | 50.97 | 1.79 | <0.001 | -0.08 | 0.40 | 0.84 |
| *Pinus sylvestris* | Con. | Boreal | 49.41 | 1.52 | <0.001 | 0.22 | 0.25 | 0.37 |
| *Alnus rubra* | Ang. | Temperate | 50.03 | 1.78 | <0.001 | -0.38 | 0.46 | 0.40 |
| *Carya* sp. | Ang. | Temperate | 47.45 | 3.04 | <0.001 | 0.11 | 0.81 | 0.88 |
| *Fagus sylvatica* | Ang. | Temperate | 48.12 | 1.85 | <0.001 | 0.33 | 0.47 | 0.48 |
| *Liriodendron tulipifera* | Ang. | Temperate | 48.25 | 1.95 | <0.001 | 0.03 | 0.67 | 0.96 |
| *Quercus alba* | Ang. | Temperate | 47.73 | 2.32 | <0.001 | -0.26 | 0.77 | 0.73 |
| *Quercus aliena var. acuteserrata* | Ang. | Temperate | 49.70 | 2.55 | <0.001 | 1.11 | 0.66 | 0.09 |
| *Quercus rubra* | Ang. | Temperate | 45.92 | 2.32 | <0.001 | 0.82 | 0.77 | 0.29 |
| *Quercus velutina* | Ang. | Temperate | 48.47 | 1.99 | <0.001 | 0.73 | 0.40 | 0.07 |
| *Abies concolor* | Con. | Temperate | 48.79 | 1.66 | <0.001 | 0.97 | 0.30 | 0.00 |
| *Abies lasiocarpa* | Con. | Temperate | 50.93 | 1.74 | <0.001 | -0.07 | 0.45 | 0.86 |
| *Abies magnifica* | Con. | Temperate | 49.59 | 1.71 | <0.001 | 0.67 | 0.36 | 0.06 |
| *Calocedrus decurrens* | Con. | Temperate | 50.86 | 1.94 | <0.001 | 0.27 | 0.44 | 0.53 |

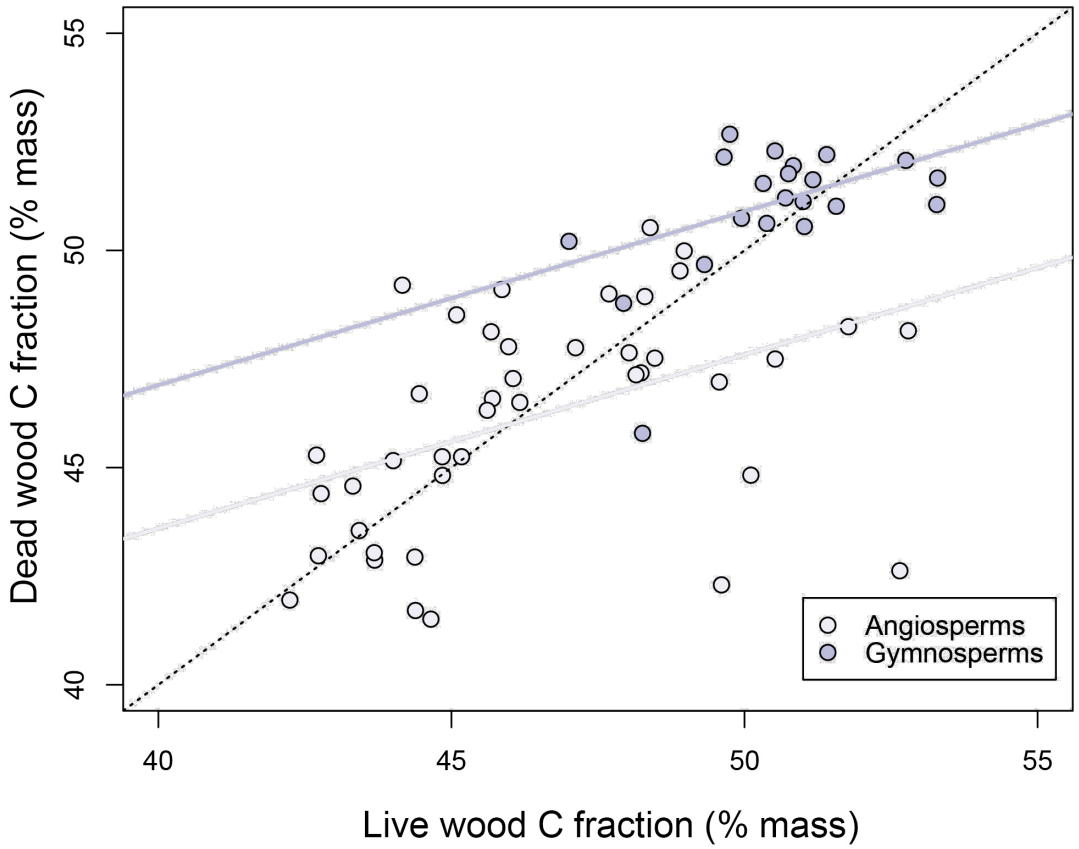
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Chamaecyparis japonica* | Con. | Temperate | 50.45 | 2.91 | <0.001 | 0.46 | 0.94 | 0.62 |
| *Chamaecyparis obtusa* | Con. | Temperate | 51.95 | 2.91 | <0.001 | 0.35 | 0.94 | 0.71 |
| *Picea lutzii* | Con. | Temperate | 50.66 | 1.78 | <0.001 | 0.03 | 0.40 | 0.93 |
| *Picea sitchensis* | Con. | Temperate | 50.84 | 2.06 | <0.001 | -0.13 | 0.47 | 0.78 |
| *Pinus armandi* | Con. | Temperate | 53.98 | 2.59 | <0.001 | 0.74 | 0.66 | 0.26 |
| *Pinus contorta* | Con. | Temperate | 49.39 | 1.73 | <0.001 | 0.82 | 0.44 | 0.06 |
| *Pinus echinata* | Con. | Temperate | 49.94 | 2.28 | <0.001 | 0.23 | 0.77 | 0.75 |
| *Pinus jeffreyi* | Con. | Temperate | 48.07 | 2.37 | <0.001 | 1.29 | 0.81 | 0.11 |
| *Pinus lambertiana* | Con. | Temperate | 51.13 | 1.77 | <0.001 | 0.23 | 0.38 | 0.53 |
| *Pinus ponderosa* | Con. | Temperate | 51.40 | 1.74 | <0.001 | 0.16 | 0.33 | 0.63 |
| *Pinus resinosa* | Con. | Temperate | 49.48 | 1.87 | <0.001 | 0.48 | 0.36 | 0.17 |
| *Pinus taeda* | Con. | Temperate | 49.95 | 1.83 | <0.001 | 0.74 | 0.45 | <0.001 |
| *Pseudotsuga menziesii* | Con. | Temperate | 49.61 | 1.54 | <0.001 | 0.81 | 0.23 | <0.001 |
| *Thuja plicata* | Con. | Temperate | 46.14 | 1.75 | <0.001 | 1.63 | 0.36 | <0.001 |
| *Tsuga heterophylla* | Con. | Temperate | 48.70 | 1.58 | <0.001 | 0.89 | 0.29 | <0.001 |
| *Altingia gracilipes* | Ang. | Sub./Med. | 51.74 | 2.67 | <0.001 | -2.12 | 0.66 | <0.001 |
| *Castanopsis carlesii* | Ang. | Sub./Med. | 53.94 | 2.67 | <0.001 | -3.30 | 0.66 | <0.001 |
| *Castanopsis faberi* | Ang. | Sub./Med. | 55.26 | 3.78 | <0.001 | -2.75 | 0.94 | <0.001 |
| *Cinnamomum chekiangense* | Ang. | Sub./Med. | 56.20 | 2.67 | <0.001 | -4.14 | 0.66 | <0.001 |
| *Croton floribundus* | Ang. | Sub./Med. | 54.94 | 3.78 | <0.001 | -0.58 | 0.94 | 0.54 |
| *Magnolia odora* | Ang. | Sub./Med. | 56.92 | 2.67 | <0.001 | -4.02 | 0.66 | <0.001 |
| *Ocotea* sp. | Ang. | Sub./Med. | 53.82 | 3.78 | <0.001 | -0.21 | 0.94 | 0.82 |
| *Abies alba* | Con. | Sub./Med. | 44.85 | 3.14 | <0.001 | 0.31 | 0.66 | 0.64 |
| *Bursera simaruba* | Ang. | Tropical | 43.90 | 2.68 | <0.001 | 0.55 | 0.66 | 0.40 |
| *Cecropia obtusifolia* | Ang. | Tropical | 45.91 | 2.81 | <0.001 | 0.26 | 0.82 | 0.74 |
| *Heliocarpus appendiculatus* | Ang. | Tropical | 45.02 | 2.81 | <0.001 | 0.89 | 0.82 | 0.27 |
| *Nectandra ambigens* | Ang. | Tropical | 48.42 | 2.81 | <0.001 | 0.30 | 0.82 | 0.70 |
| *Pseudolmedia glabrata* | Ang. | Tropical | 44.73 | 2.51 | <0.001 | 0.62 | 0.47 | 0.19 |
| *Sabal* sp. | Ang. | Tropical | 48.35 | 2.68 | <0.001 | -0.48 | 0.66 | 0.46 |

**Supplementary Table 6.** Analysis of covariance model predicting dead wood carbon fractions (CFs) within a species, as a function of live wood CF, division (i.e., gymnosperm vs. angiosperm), as well as a live wood CF-by-division interaction term. Significant terms are highlighted in bold, and sample size was *n*=63 species (*n*=42 and *n*=21 angiosperms and gymnosperms, respectively). Model parameters are presented in Supplementary Table 7 and graphically in Supplementary Figure 1.

| Variable | D.F. | Sum Sq. | Mean Sq. | *F* | *p* |
|---|---|---|---|---|---|
| **Live wood CF** | **1** | **299.6** | **299.6** | **72.3** | **<0.001** |
| **Division** | **1** | **91.2** | **91.2** | **22.0** | **<0.001** |
| Live CF*division | 1 | 0.8 | 0.8 | 0.2 | 0.669 |
| Residuals | 59 | 244.6 | 4.2 | | |

**Supplementary Table 7.** Parameters of a linear model predicting dead wood carbon fractions (CFs) within a species, as a function of live wood CF and division (i.e., gymnosperm vs. angiosperm). In this model, a live wood CF-by-division interaction term was not included (based on results presented in Supplementary Table 6), so only the intercept differs across species types. Significant terms are highlighted in bold, and sample size was *n*=63 species (*n*=42 and *n*=21 angiosperms and gymnosperms, respectively). Type-specific models are presented in Supplementary Figure 1.

| Parameter | Estimate | S.E. | *t* | *p* |
|---|---|---|---|---|
| **Intercept** | **27.6** | **4.9** | **5.7** | **<0.001** |
| **Live wood CF** | **0.4** | **0.1** | **3.8** | **<0.001** |
| **Gymnosperm intercept term** | **3.3** | **0.7** | **4.7** | **<0.001** |




**Supplementary Figure 1.** Dead wood C fractions as a function of live wood C fractions across 42 angiosperm and 21 gymnosperm tree species. Solid lines corresponds to a linear model fit based on analysis of covariance (Supplementary Table 7) for angiosperms and gymnosperms, and the black dotted line represents a 1:1 relationship.