SUPPLEMENTARY MATERIAL FOR:

From deadwood to forest soils – quantifying a key carbon flux in boreal ecosystems

Jogeir Stokland, Gry Alfredsen*

Norwegian Institute of Bioeconomy Research (NIBIO), Division of Forestry and Forest Resources, P.O. Box 115, NO-1431 Ås, Norway

***Correspondence**:
Gry Alfredsen
gry.alfredsen@nibio.no

Carbon flux from dead wood to soil

Table S1 Wood density (g/cm^3 for Norway spruce ($DD_{1\text{-}5}$) across the five decay classes from wood studies documenting all five decay classes

Decay class	Yatskov et al. 2003	Mäkinen et al. 2006	Köster et al. 2015	Stakenas et al. 2020	Romashkin et al. 2021	Aakala & Heikkinen 2024	Mean
1	0.36	0.37	0.41	0.39	0.38	0.38	0.38
2	0.34	0.30	0.35	0.38	0.36	0.30	0.34
3	0.24	0.23	0.28	0.32	0.30	0.22	0.27
4	0.14	0.13	0.19	0.20	0.20	0.16	0.17
5	0.11	0.08	0.12	0.11	0.13	0.10	0.11

Table S2 *Cd* values representing remaining carbon as percentage of the carbon in non-decayed wood for Norway spruce across five decay classes. Derived from Table S1 using Eq. 3b with $il = 0.07$

Decay class	Yatskov et al. 2003	Mäkinen et al. 2006	Köster et al. 2015	Stakenas et al. 2020	Romashkin et al. 2021	Aakala & Heikkinen 2024	Mean C_d
1	93	93	93	93	93	93	93
2	88	78	80	91	88	72	83
3	64	61	66	79	76	57	67
4	41	36	49	53	55	43	46
5	32	22	32	29	36	27	30

Table S3 Buried carbon as percentage of the carbon in non-decayed wood for Norway spruce across five decay classes. Mean *Cd* values from Table S2 as input to Eq. 4 using different sets of b_d values indicating burial rates on mineral soils and organic soils, respectively.

	Mineral soils		**Organic soils**	
Decay class	b_d	BC_d	b_d	BC_d
1	0	0%	0.0	0%
2	0	0%	0.0	0%
3	0.1	7%	0.3	21%
4	0.3	14%	0.3	14%
5	0.6	18%	0.4	12%
Sum, buried carbon		39%		47%

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