Table S2: Geochemical soil properties and mean dissolved organic carbon (DOC) concentrations of plots in the Hainich Dün (HEW) and Schorfheide Chorin (SEW) sites. LL = litter leachate, TOP = topsoil , SUB = subsoil, reduction cDOC (%) = reduction of DOC concentration in % between LL and TOP or TOP and SUB , C_{org} = organic carbon concentration of soil, Al_0 = aluminum concentration oxalate extracted, Fe_0 = iron concentration oxalate extracted

plot	ecosystem flux / soil layer	management category	DOC [mgL-1]	reduction cDOC (%)	C_{org} [g/kg]	Al_o [g/kg]	Fe_o [g/kg]	clay [g/kg]	texture (KA5*)	pH soil ($CaCl_2$)
HEW1	LL	category	39.23							
HEW1	Top	coniferous age-class	11.26	71.31	69.14	3.28	3.50	326	Lu	7.0
HEW1	Sub	coniferous age-class	15.46	-37.36	28.99	4.38	3.89	239	Uls/Tl	7.5
HEW2	LL	coniferous age-class	41.54							
HEW2	Top	coniferous age-class	24.72	40.49	50.60	1.43	4.92	241	Lu /Ut4	4.6
HEW2	Sub	coniferous age-class	7.70	68.84	6.95	1.73	2.98	589	Tu2	7.0
HEW3	LL	coniferous age-class	66.08							
HEW3	Top	coniferous age-class	16.76	74.64	47.74	2.33	3.18	359	Ut3/Ut2	3.9
HEW3	Sub	coniferous age-class	14.04	16.22	10.33	2.38	2.37	634	Tl	6.7
HEW4	LL	deciduous age-class	22.76							
HEW5	LL	deciduous age-class	18.26							
HEW5	Top	deciduous age-class	7.50	58.92	61.77	3.79	3.19	457	Lu	5.2
HEW5	Sub	deciduous age-class	5.12	31.78						7.2
HEW6	LL	deciduous age-class	17.57							
HEW6	Top	deciduous age-class	11.30	35.70	34.40	2.19	3.73	214	Lu	4.3
HEW6	Sub	deciduous age-class	5.20	54.02	5.15	2.45	3.62	442	Tu2/Tl	5.4
HEW10	LL	unmanaged	24.18							
HEW10	Top	unmanaged	7.95	67.15	67.59	3.49	4.74	485	Ut4	4.1
HEW11	LL	unmanaged	29.77							
HEW11	Top	unmanaged	10.96	63.20	58.52	3.31	4.72	404	Ut4	4.9
HEW11	Sub	unmanaged	12.10	-10.41	19.78	3.46	4.32	517	Tu3	4.9
HEW12	LL	unmanaged	24.02							
HEW12	Top	unmanaged	7.42	69.09	31.13	1.72	2.64	164	Ut4	3.9
HEW12	Sub	unmanaged	5.60	24.52	5.58	2.43	3.19	424	Tu2	5.9
SEW1	LL	coniferous age-class	67.07							
SEW1	Top	coniferous age-class	58.63	12.59	18.34	1.82	2.02	5	Sl2	3.6
SEW1	Sub	coniferous age-class	16.19	72.39	2.06	2.05	2.03	1	Sl2	3.9
SEW2	LL	coniferous age-class	58.50							
SEW2	TOP	coniferous age-class	26.73	54.31	16.99	1.78	1.94	32	Sl2	3.5
SEW2	Sub	coniferous age-class	11.40	57.34	2.26	2.68	2.50	33	Sl2	4.2
SEW3	LL	coniferous age-class	57.20							
SEW3	Top	coniferous age-class	37.09	35.15	20.95	1.61	1.62	17	Sl2	3.3
SEW3	Sub	coniferous age-class	15.06	59.39	4.05	2.09	1.38	3	Sl2	4.0
SEW5	LL	deciduous age-class	32.84							
SEW5	Top	deciduous age-class	91.81	-179.59	29.56	1.20	1.04	1	Sl2	3.1
SEW5	Sub	deciduous age-class	27.86	69.65	2.50	2.21	1.29	1	Sl2/Su2	3.4
SEW6	LL	deciduous age-class	37.84							
SEW6	Top	deciduous age-class	12.84	66.05	31.05	2.39	2.52	23	Sl2	3.4
SEW6	Sub	deciduous age-class	8.48	34.00	1.45	1.77	1.60	17	Sl2	3.9
SEW7	LL	unmanaged	26.20							
SEW7	Top	unmanaged	46.86	-78.84	24.30	1.74	1.78	1	Sl2	3.2
SEW7	Sub	unmanaged	16.89	63.96	6.37	1.38	1.55		Sl2	3.7
SEW8	LL	unmanaged	41.33							
SEW8	Top	unmanaged	29.03	29.76	29.20	1.86	1.58	20	Sl2	3.1
SEW8	Sub	unmanaged	13.07	54.97	10.28	1.52	1.48	1	Sl2	3.2
SEW9	LL	unmanaged	42.50							
SEW9	Top	unmanaged	39.94	6.01	22.96	0.95	1.01	18	Sl2	3.0
SEW9	Sub	unmanaged	14.92	62.65	4.81	1.43	1.09	1	Sl2	3.7

* KA5 = Ad-Hoc-Arbeitsgruppe Boden (2005)

Table S5: sample information: DOM biodegradability. Mean concentrations of nitrogen and phosphor in samples before incubation. NH_4-N + NO_3-N = concentration of ammonium and nitrate nitrogen, PO_4-P = concentration of ortho phophate

	TF		SF		LL	
	NH_4-N + NO_3-N [mg L^{-1}]	PO_4-P [mg L^{-1}]	NH_4-N + NO_3-N [mg L^{-1}]	PO_4-P [mg L^{-1}]	NH_4-N + NO_3-N [mg L^{-1}]	PO_4-P [mg L^{-1}]
Schwäbische Alb						
coniferous age-class	1.42	0.047			3.85	0.206
deciduous age-class	1.02	0.144	4.37	0.830	0.82	0.184
unmanaged	1.45	0.052	3.44	0.136	5.14	0.349
Hainich Dün						
coniferous age-class	7.39	0.330	18.68	0.086	4.95	0.113
deciduous age-class	2.97	0.146	2.24	0.008	5.23	0.828
unmanaged	2.44	0.124	2.19	0.017	7.17	1.158
Schorfheide Chorin						
coniferous age-class	0.92	0.018	6.57	0.015	0.77	0.301
deciduous age-class	0.71	0.232	1.34	0.124	7.04	0.323
unmanaged	2.27	0.727	1.25	0.130	1.97	0.504