Oliveira Longa CM, Francioli D, Gómez-Brandón M, Ascher-Jenull J, Bardelli T, Pietramellara G, Egli M, Sartori G, Insam H (2018).
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Supplementary Material

Tab. S1 - Characteristics of the eight study sites at north- and south-facing slopes (N1-4 and S6-9, respectively) in Val di Rabbi (Egli et al., 2006; Petrillo et al., 2015). (MAP): mean annual precipitation; (MAAT): mean annual air temperature (Sboarina & Cescatti 2004); (MAST): mean annual soil temperature. The soil classification is according to WRB (1998).

Sites	Altitude (m a.s.l.)	Aspect (°N)	Slope (°)	MAP (mm y^{-1})	MAAT (° C)	MAST (° C)	Parent material	Dominating tree species	Land use	Soil classification
N1	1180	340	31	950	5.6	7.3	Paragneiss debris	*Picea abies*	Natural forest (ecological forestry)	Chromi-Episkeletic Cambisol (Dystric)
S6	1185	160	31	950	7.6	8.1	Paragneiss debris	*Picea abies*	Ex-coppice, natural forest (ecological forestry)	Episkeleti-Endoleptic Cambisol (Chromi-Dystric)
N2	1390	0	28	1000	4.6	6.3	Paragneiss debris	*Picea abies*	Natural forest (ecological forestry)	Chromi-Episkeletic Cambisol (Dystric)
S7	1400	145	33	1000	6.6	8.7	Paragneiss debris	*Larix decidua*	Natural forest (ecological forestry)	Dystri-Endoskeletic Cambisol
N3	1620	0	29	1060	3.5	5.8	Paragneiss debris	*Picea abies*	Natural forest (ecological forestry)	Chromi-Endoskeletic Cambisol (Dystric)
S8	1660	210	33	1060	5.5	6.0	Paragneiss debris	*Picea abies*	Natural forest (ecological forestry)	Skeletic Umbrisol
N4	1930	20	12	1180	1.4	5.0	Paragneiss debris, Moraine material	*Larix decidua*	Originally used as pasture	Episkeletic Podzol
S9	1995	160	25	1180	3.4	6.4	Paragneiss debris	*Larix decidua*	Ex-pasture, natural forest (ecological forestry)	Skeletic Umbrisol

Tab. S2 - Physico-chemical properties of soil and wood samples collected in July 2014 in the *in-field* mesocosm experiment. The results are shown pairwise, i.e., the couple of north (N)- and south (S)-facing sites at the same elevation (N1-S6; 1200 m a.s.l.; N2-S7; 1400 m a.s.l.; N3-S8; 1600 m a.s.l.; N4-S9; 2000 m a.s.l.). Values are means (n=3) with the standard deviation in brackets. Data are expressed on a dry weight basis.

	SOIL										WOOD					
Sites	**Moisture (%)**	**Volatile Solids (%)**	**pH**	**Electrical Conductivity (µS cm^{-1})**	**Total C (%)**	**Total N (%)**	**NH_4^+ (mg kg^{-1} dw)**	**NO_3^- (mg kg^{-1} dw)**	**Total P (mg kg^{-1} dw)**	**Available P (mg kg^{-1} dw)**	**Moisture (%)**	**pH**	**Electrical Conductivity (µS cm^{-1})**	**Total C (%)**	**Cellulose (%)**	**Total Lignin (%)**
N1	42.8 (7.8)	22.4 (7.7)	5.3 (0.3)	29.1 (4.6)	11.1 (4.3)	0.3 (0.1)	22.4 (8.1)	59.9 (32.3)	689.4 (542.5)	19.7 (5.3)	58.4 (7.99)	5.6 (0.05)	15.8 (1.7)	49.4 (0.3)	40.5 (7.3)	31.3 (0.9)
S6	35.2 (7.9)	17.7 (8.5)	5.8 (0.1)	49.2 (20.1)	8.8 (4.8)	0.5 (0.2)	26.1 (8.0)	25.7 (12.7)	359.7 (192.6)	18.8 (9.1)	54.5 (3.4)	4.5 (0.7)	80.7 (47.0)	51.6 (0.5)	37.9 (3.1)	31.6 (2.6)
N2	72.9 (1.7)	77.2 (12.5)	4.4 (0.2)	40.8 (10.3)	43.4 (4.4)	1.3 (0.1)	152.4 (32)	30.6 (5.3)	449.6 (68.0)	96.5 (11.8)	58.2 (6.8)	5.0 (0.1)	10.3 (0.8)	50.5 (1.3)	42.2 (5.3)	31.1 (1.9)
S7	44.2 (6.8)	77.2 (12.5)	5.6 (0.1)	94.6 (17.2)	26.9 (8.3)	1.1 (0.3)	49.3 (15.7)	57.9 (13.0)	742.1 (149.3)	90.3 (11.3)	39.1 (9.8)	5.5 (0.2)	32.9 (1.6)	49.7 (0.5)	37.4 (3.0)	31.8 (1.3)
N3	72.3 (3.2)	84.5 (6.7)	4.8 (0.05)	55.2 (10.8)	44.8 (2.7)	1.4 (0.04)	188.9 (69.8)	56.7 (6.4)	716.8 (80.4)	66.2 (16.4)	48.6 (13.2)	5.2 (0.2)	19.9 (8.5)	49.9 (0.3)	44.5 (3.7)	31.6 (2.1)
S8	55.0 (10.8)	47.6 (15.9)	5.2 (0.1)	150.4 (34.0)	25.2 (8.9)	1.2 (0.2)	7.3 (1.1)	204.5 (81.3)	747.7 (98.9)	26.8 (12.9)	61.9 (2.5)	5.9 (0.1)	18.2 (2.6)	51.4 (0.5)	41.1 (4.3)	32.0 (1.1)
N4	53.2 (4.2)	30.6 (7.3)	5.2 (0.2)	36.8 (18.7)	15.0 (4.0)	1.1 (0.2)	79.3 (20.8)	58.4 (18.3)	1277.3 (279.2)	48.0 (2.2)	61.0 (2.1)	5.7 (0.3)	22.2 (16.2)	49.1 (0.1)	45.9 (2.2)	33.3 (1.4)
S9	45.8 (3.5)	29.4 (5.2)	5.2 (0.1)	80.1 (15.6)	15.3 (2.7)	1.0 (0.2)	52.2 (13.7)	167.9 (86.0)	839.2 (114.7)	29.6 (15.1)	53.7 (6.5)	5.4 (0.1)	22.3 (7.2)	48.9 (0.9)	45.5 (2.9)	32.2 (1.2)

Tab. S3 - Fungal taxa isolated from soil (So) and wood (W) along an altitudinal gradient in sub-alpine forest in Val di Rabbi (Trentino, Italy). North-facing (N1-4) and south-facing (S5-9) sites ranging from 1200 up to 2000 m a.s.l. The characteristics of sites were described in Tab. S1 and their location was indicated in Fig. S1.

Species	Sites								Phylum	Ecology	Closest match with accession No.
	N1	N2	N3	N4	S6	S7	S8	S9			
Absidia cylindrospora	So					So			Zygomycota	Saprotroph	98% AY944889.1
Absidia glauca					So	W So			Zygomycota	Saprotroph	98 % NR_111658.1
Absidia psychrophilia							So	So	Zygomycota	Saprotroph	99% JN942684.1
Acephala sp.								W	Ascomycota	Endophyte	98% KT184733.1
Armillaria cepistipes						W	W		Basidiomycota	Wood-decay fungus (white-rot)	98% KJ643346.1
Arthrinium phaeospermum								So	Ascomycota	Saprotroph	99% KF753946.1
Aspergillus versicolor						So			Ascomycota	Saprotroph	99% KU318417.1
Athelia decipiens			W						Basidiomycota	Wood-decay fungus (white-rot)	99% JQ358800.1
Aureobasidium pullulans	So		So		So	So	So	So	Ascomycota	Saprotroph	99% KL584974.1
Beauveria brongniartii		So		So	So				Ascomycota	Entomopathogen	99% JX110381.1
Bjerkandera adusta					W				Basidiomycota	Wood-decay fungus (white-rot)	99% AF455468.1
Chalara holubovae					So				Basidiomycota	Phytopathogen	99% FR667223.1
Cladosporium cladosporioides	So				W So	So	So		Ascomycota	Saprotroph	99% AF538619.2
Coprinellus radians		So				W	W So		Basidiomycota	Mutualist	99% JN943117.1
Cosmospora sp.		So				So			Ascomycota	Mycoparasite	99% KM012000.1
Cryptococcus terricola								So	Basidiomycota	Saprotroph	99% KP714548.1
Cryptococcus podzolicus		So		So					Basidiomycota	Saprotroph	99% HG737347.1
Epicoccum nigrum	So	So		So			So	So	Ascomycota	Saprotroph	99% EU529998.1
Eurotiomycetes					So				Ascomycota		99% KJ508325.1
Exophiala sp.					So				Ascomycota	Saprotroph	99% KF428675.1
Geomyces sp.		W So	W So			So			Ascomycota	Saprotroph	99% KU702239.1
Geomyces pannorum		So		So					Ascomycota	Saprotroph	99% KM396373.1
Heliotiales		So	So	So	So				Ascomycota		97% KC333167.1
Heterobasidion annosum			W						Ascomycota	Wood-decay fungus (white-rot)	100% KU727785.1
Humicola fuscoatra					So				Ascomycota	Wood-decay fungus (soft-rot)	99% KF981440.1
Lecytophora sp.	W				So				Ascomycota	Wood-decay fungus (soft-rot)	99% KT264383.1
Leohumicola sp.				W		W			Ascomycota	Saprotroph	99% JX912155.1
Mortierella alpine	So		So	So			So	So	Zygomycota	Saprotroph	99% JX976132.1
Mortierella pavispora		So	So						Zygomycota	Saprotroph	99% KU516633.1
Mucor moelleri				So				W So	Zygomycota	Saprotroph	99% KM056328.1
Mucor plumbeus								W	Zygomycota	Saprotroph	100% KP881447.1
Mucor racemosus		W	So			W So	W So		Zygomycota	Saprotroph	99% KP411577.1

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Species	Sites								Phylum	Ecology	Closest match with accession No.
	N1	N2	N3	N4	S6	S7	S8	S9			
Oidiodendron echinulatum		So							Ascomycota	Saprotroph	100% DQ069040.1
Oidiodendron periconioides		So							Ascomycota	Saprotroph	100% KP276549.1
Paecilomyces carneus				So					Ascomycota	Entomopathogen	99% JF311959.1
Penicillium sp.		W							Ascomycota	Saprotroph	99% FJ379809.1
Penicillium brevicompactum			So						Ascomycota	Saprotroph	99% AY373899.1
Penicillium canescens	So				So				Ascomycota	Saprotroph	99% KU325381.1
Penicillium citrinum	So	So		W	W So	W	W So	So	Ascomycota	Saprotroph	99% KM458810.1
Penicillium swiecickii			So		So				Ascomycota	Saprotroph	99% AF033490.1
Phaeoacremonium mortoniae							W		Ascomycota	Phytopathogen	99% EU427312.1
Sporobolomyces coprosmae					So				Basidiomycota	Saprotroph	99% AM160645.1
Sporobolomyces salmonicolor				W					Ascomycota	Saprotroph	99% AF444611.1
Trichoderma asperellum				So					Ascomycota	Saprotroph	99% JF501661.1
Trichoderma atroviride	W		So						Ascomycota	Saprotroph	99% KT355018.1
Trichoderma citrinoviride	W					W So			Ascomycota	Saprotroph	99% KP281703.1
Trichoderma tomentosum					So				Ascomycota	Saprotroph	99% EU871024.1
Trichoderma viridescens	W So	W So			W So	W So	W So	W So	Ascomycota	Saprotroph	99% JF303879.1
Umbelopsis isabellina	W					So			Zygomycota	Saprotroph	99% JN943789.1
Umbelopsis vinacea	W	So		W		W So	So	So	Zygomycota	Saprotroph	99% KT354998.1
Umbelopsis ramanniana	So								Zygomycota	Saprotroph	99% LN714617.1
Mycelia sterilia	So	So	W	W So	So	W So		W So			

Fig. S1 - Overview of the study area (Trentino, Italy) with major vegetation units. The site label (N) indicates north-facing and (S) south-facing sites (Petrillo et al. 2015). Data source: Museo delle Scienze (Trento), CORINE Landcover (Joint Research Center of the European Union) and scilands GmbH.

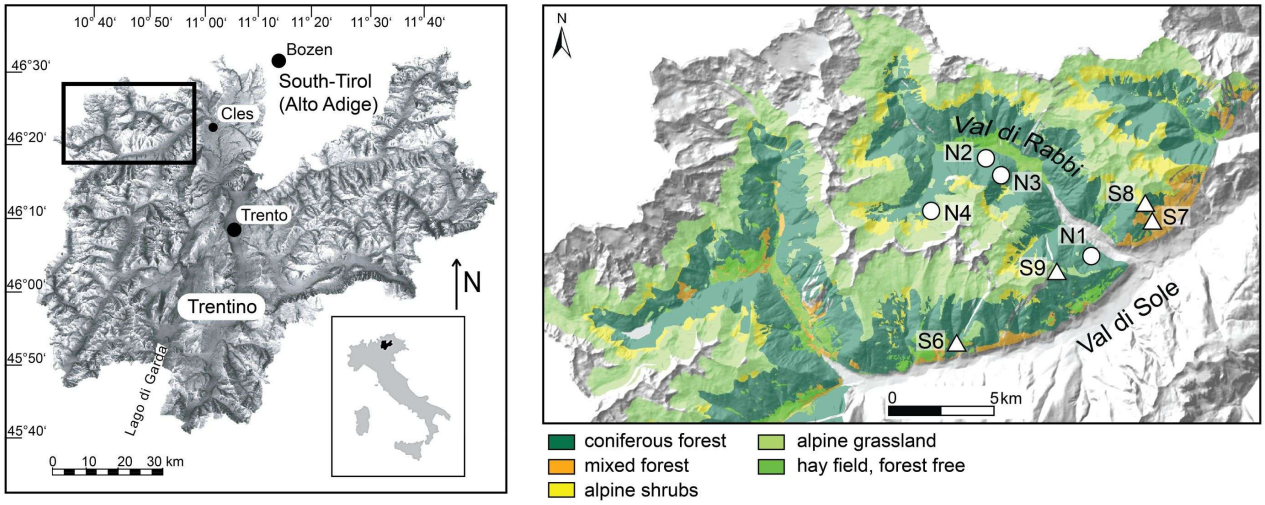

Fig. S2 - Example of the destructive *in-field* mesocosm sampling (wood and soil).(a) Study site (N1); (b) weighing of the collected *Picea abies* wood block; (c) cross-section of the wood block after 52 weeks (July 2014) of decomposition; (d) sampling of the mesocosm soil (0-5 cm).

Fig. S3 – Number of fungal taxa identified for each site for the wood (a) and soil (b) samples (n=3) along an altitudinal gradient in a subalpine forest in Val di Rabbi (Trentino, Italy).