

1 Supplemental Table S1: Values of water potentials for *Fagus sylvatica*, at predawn (ψ_{pd}) and at midday (ψ_{md}), reported in the literature; the most negative
2 value of both ψ_{pd} and ψ_{md} found in each study is given. Leaf positions within the crown or other particular conditions of measurements are also indicated. Tree
3 age and height, when available are given, as well as the date of measurements, stand characteristics and country (FR: France, GE: Germany, GR: Greece, IP:
4 Iberian Peninsula, PO: Poland, SW: Switzerland, UK: United Kingdom).

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Ψ_{pd} (MPa)	Ψ_{md} (MPa)	Leaf position within the crown or experimental condition	Age in years (<i>height</i>)	Date	Stand description / Country	Reference
-0.12 -0.11	-2.4 -1.3	Sun leaves Shade leaves	5 and 55	1999	Kranzberg Forest / GE	Wieser et al. (2003)
-0.2 -0.2	-2.8 -2.0	Sun leaves Shade leaves	29	1999	Same stand as in the present study / FR	Lemoine et al. (2002b)
-0.71	-2.19	Lower sunny crown	85-105	1990-1993	Beech-oak forest in Lower Saxony / GE	Backes and Leuschner (2000)
-0.8	-2.4	Upper canopy leaves	30 (10-12 m)	1993-1994	Beech-oak forest in the Sistema Central / IP	Aranda et al. (2000)
-0.81	-2.2	Leaves in uppermost canopy Upper third of the crown	(15 m)	2000	Beech-oak forest in the Sistema Central / IP	Aranda et al. (2005)
-1.15	-2.03	Lower sunny crown	90-110	1990-1993 and 1995	Beech-oak forest in Lower Saxony / GE	Leuschner et al. (2001)
-1.4 -1.3	-1.9 -2.0	Ambient ozone twice-ambient ozone regime	60 (>28 m)	2003	Mixed beech-spruce forest in the Kranzberg Forest / GE	Löw et al. (2006)
-1.44 -1.66	-1.77 -1.76	Ambient CO2 Elevated CO2	80-100 (30-35 m)	2003	Mixed forest / SW	Leuzinger et al. (2005)

-1.79	-2.6	Sunny crown	Mature trees (31 m)	2006	Mixed broad-leaved forest in Thuringia / GE	Köcher et al (2009)
-1.99	-2.76	Lower canopy leaves	15 (7.7 m)	2003	Broad-leaved mixed stand in the state forest of Hesse /FR	Peiffer (2005)
-2.28	-2.88	Upper canopy leaves	37 (17 m)	2003	90%-pure beech stand in the state forest of Hesse / FR	Present study Peiffer et al. (2014)
-2.04	-2.24	Lower canopy leaves				
	-1.75		56 (21 m)	1989	Predominantly beech forest / UK	Roberts and Rosier (1994)
	-1.94		30 - 60 (17 m)	2003-2005	Pure beech stand, Paiko mountain / GR	Fotelli et al. (2009)
	-2.37	Full sunlight leaves	70	1993 and 1997	Arboretum of Amance / FR	Cochard et al. (1999)
	-1.39	Shade leaves				
	-4.0	South oriented middle crown	(9 m)	1998	Mixed open woodland, Mount Vertiscos / GR	Raftoyannis and Radoglou (2002)
-2.5			adult	2003	Arboretum of Amance / FR	Bréda et al. (2004)

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