Teemu Holtta

List of Publications by Year
in descending order

89 papers	4,069 citations	109321 35 h-index	123424 61 g-index
90 all docs	90 docs citations	90 times ranked	4099 citing authors

#	Article	IF	Citations
1	Evaluating theories of droughtâ€induced vegetation mortality using a multimodelâ€“experiment framework. New Phytologist, 2013, 200, 304-321.	7.3	340
2	Linking phloem function to structure: Analysis with a coupled xylemâ€“phloem transport model. Journal of Theoretical Biology, 2009, 259, 325-337.	1.7	207
3	Modeling xylem and phloem water flows in trees according to cohesion theory and MÃ¼nch hypothesis. Trees - Structure and Function, 2006, 20, 67-78.	1.9	206
4	The significance of phloem transport for the speed with which canopy photosynthesis and belowground respiration are linked. New Phytologist, 2010, 185, 189-203.	7.3	181
5	Assimilate transport in phloem sets conditions for leaf gas exchange. Plant, Cell and Environment, 2013, 36, 655-669.	5.7	161
6	New insights into the covariation of stomatal, mesophyll and hydraulic conductances from optimization models incorporating nonstomatal limitations to photosynthesis. New Phytologist, 2018, 217, 571-585.	7.3	135
7	Effects of the hydraulic coupling between xylem and phloem on diurnal phloem diameter variation. Plant, Cell and Environment, 2011, 34, 690-703.	5.7	129
8	Coordination of physiological traits involved in droughtâ€induced mortality of woody plants. New Phytologist, 2015, 208, 396-409.	7.3	123
9	Capacitive effect of cavitation in xylem conduits: results from a dynamic model. Plant, Cell and Environment, 2009, 32, 10-21.	5.7	115
10	Hydraulic functioning of tree stemsâ€"fusing ray anatomy, radial transfer and capacitance. Tree Physiology, 2015, 35, 706-722.	3.1	110
11	New Insights into the Mechanisms of Water-Stress-Induced Cavitation in Conifers. Plant Physiology, 2009, 151, 949-954.	4.8	97
12	A physiological model of softwood cambial growth. Tree Physiology, 2010, 30, 1235-1252.	3.1	96
13	Sanioâ€™s laws revisited. Sizeâ€dependent changes in the xylem architecture of trees. Ecology Letters, 2007, 10, 1084-1093.	6.4	92
14	Concurrent measurements of change in the bark and xylem diameters of trees reveal a phloemâ€generated turgor signal. New Phytologist, 2013, 198, 1143-1154.	7.3	92
15	An empirical method that separates irreversible stem radial growth from bark water content changes in trees: theory and case studies. Plant, Cell and Environment, 2017, 40, 290-303.	5.7	86
16	Comparison of phloem and xylem hydraulic architecture in <i><scp>P</scp>icea abies</i> stems. New Phytologist, 2015, 205, 102-115.	7.3	79
17	Separating waterâ€potential induced swelling and shrinking from measured radial stem variations reveals a cambial growth and osmotic concentration signal. Plant, Cell and Environment, 2016, 39, 233-244.	5.7	79
18	The effect of artificially induced drought on radial increment and wood properties of Norway spruce. Tree Physiology, 2010, 30, 103-115.	3.1	71

#	Article	IF	Citations
19	Fluxes of carbon dioxide and water vapour over Scots pine forest and clearing. Agricultural and Forest Meteorology, 2002, 111, 187-202.	4.8	70
20	Drought impacts on tree phloem: from cell-level responses to ecological significance. Tree Physiology, 2019, 39, 173-191.	3.1	68
21	Refilling of a Hydraulically Isolated Embolized Xylem Vessel: Model Calculations. Annals of Botany, 2003, 91, 419-428.	2.9	66
22	Leaf carbon and water status control stomatal and nonstomatal limitations of photosynthesis in trees. New Phytologist, 2020, 226, 690-703.	7.3	66
23	Global transpiration data from sap flow measurements: the SAPFLUXNET database. Earth System Science Data, 2021, 13, 2607-2649.	9.9	65
24	Osmolality and Non-Structural Carbohydrate Composition in the Secondary Phloem of Trees across a Latitudinal Gradient in Europe. Frontiers in Plant Science, 2016, 7, 726.	3.6	60
25	The effects of sap ionic composition on xylem vulnerability to cavitation. Journal of Experimental Botany, 2010, 61, 275-285.	4.8	59
26	Effect of Leaf Water Potential on Internal Humidity and CO2 Dissolution: Reverse Transpiration and Improved Water Use Efficiency under Negative Pressure. Frontiers in Plant Science, 2017, 8, 54.	3.6	57
27	Wood allocation tradeâ€offs between fiber wall, fiber lumen, and axial parenchyma drive drought resistance in neotropical trees. Plant, Cell and Environment, 2020, 43, 965-980.	5.7	56
28	Interpretation of stem CO2 efflux measurements. Tree Physiology, 2009, 29, 1447-1456.	3.1	55
29	Scaling of xylem and phloem transport capacity and resource usage with tree size. Frontiers in Plant Science, 2013, 4, 496.	3.6	52
30	Anatomical regulation of ice nucleation and cavitation helps trees to survive freezing and drought stress. Scientific Reports, 2013, 3, 2031.	3.3	49
31	Dynamics of leaf gas exchange, xylem and phloem transport, water potential and carbohydrate concentration in a realistic 3-D model tree crown. Annals of Botany, 2014, 114, 653-666.	2.9	49
32	Refilling of embolised conduits as a consequence of 'MÃ¼nch water' circulation. Functional Plant Biology, 2006, 33, 949.	2.1	44
33	A steady-state stomatal model of balanced leaf gas exchange, hydraulics and maximal sourceâ€"sink flux. Tree Physiology, 2017, 37, 851-868.	3.1	43
34	Relationships between Embolism, Stem Water Tension, and Diameter Changes. Journal of Theoretical Biology, 2002, 215, 23-38.	1.7	42
35	An analysis of Granier sap flow method, its sensitivity to heat storage and a new approach to improve its time dynamics. Agricultural and Forest Meteorology, 2015, 211-212, 2-12.	4.8	42
36	A carbon costâ€"gain model explains the observed patterns of xylem safety and efficiency. Plant, Cell and Environment, 2011, 34, 1819-1834.	5.7	40

#	Article	IF	Citations
37	Positive pressure in xylem and its role in hydraulic function. New Phytologist, 2021, 230, 27-45.	7.3	39
38	Field measurements of ultrasonic acoustic emissions and stem diameter variations. New insight into the relationship between xylem tensions and embolism. Tree Physiology, 2005, 25, 237-243.	3.1	36
39	Tree water relations can trigger monoterpene emissions from Scots pine stems during spring recovery. Biogeosciences, 2015, 12, 5353-5363.	3.3	34
40	Systemic Signaling in the Regulation of Stomatal Conductance. Plant Physiology, 2020, 182, 1829-1832.	4.8	30
41	Diurnal patterns in Scots pine stem oleoresin pressure in a boreal forest. Plant, Cell and Environment, 2016, 39, 527-538.	5.7	25
42	Quantifying in situ phenotypic variability in the hydraulic properties of four tree species across their distribution range in Europe. PLoS ONE, 2018, 13, e0196075.	2.5	25
43	The importance of tree internal water storage under drought conditions. Tree Physiology, 2022, 42, 771-783.	3.1	23
44	Drought effects on carbon allocation to resin defences and on resin dynamics in old-grown Scots pine. Environmental and Experimental Botany, 2021, 185, 104410.	4.2	22
45	Gradients and dynamics of inner bark and needle osmotic potentials in Scots pine (<scp><i>Pinus) Tj ETQq1 1 0.784314 rgBT /Overlock Environment, 2017, 40, 2160-2173.	5.7	22
46	Cavitation induced by a surfactant leads to a transient release of water stress and subsequent â€˜run awayâ€™ embolism in Scots pine (Pinus sylvestris) seedlings. Journal of Experimental Botany, 2012, 63, 1057-1067.	4.8	21
47	Effects of Competition, Drought Stress and Photosynthetic Productivity on the Radial Growth of White Spruce in Western Canada. Frontiers in Plant Science, 2017, 8, 1915.	3.6	21
48	Bursts of CO2 released during freezing offer a new perspective on avoidance of winter embolism in trees. Annals of Botany, 2014, 114, 1711-1718.	2.9	20
49	Transpiration directly regulates the emissions of waterâ€soluble shortâ€chained OVOCs. Plant, Cell and Environment, 2018, 41, 2288-2298.	5.7	20
50	Water relations in silver birch during springtime: How is sap pressurised?. Plant Biology, 2018, 20, 834-847.	3.8	20
51	Comparative Criteria for Models of the Vascular Transport Systems of Tall Trees. Tree Physiology, 2011, , 309-339.	2.5	19
52	Tree differences in primary and secondary growth drive convergent scaling in leaf area to sapwood area across Europe. New Phytologist, 2018, 218, 1383-1392.	7.3	18
53	A model of bubble growth leading to xylem conduit embolism. Journal of Theoretical Biology, 2007, 249, 111-123.	1.7	16
54	Irreversible diameter change of wood segments correlates with other methods for estimating frost tolerance of living cells in freeze-thaw experiment: a case study with seven urban tree species in Helsinki. Annals of Forest Science, 2015, 72, 1089-1098.	2.0	16

#	Article	IF	Citations
55	Drivers of apoplastic freezing in gymnosperm and angiosperm branches. Ecology and Evolution, 2018, 8, 333-343.	1.9	16
56	The influence of soil temperature and water content on belowground hydraulic conductance and leaf gas exchange in mature trees of three boreal species. Plant, Cell and Environment, 2020, 43, 532-547.	5.7	16
57	Dynamics of leaf gas exchange, chlorophyll fluorescence and stem diameter changes during freezing and thawing of Scots pine seedlings. Tree Physiology, 2015, 35, 1314-1324.	3.1	13
58	Linking stem growth respiration to the seasonal course of stem growth and GPP of Scots pine. Tree Physiology, 2018, 38, 1356-1370.	3.1	12
59	Close-range hyperspectral spectroscopy reveals leaf water content dynamics. Remote Sensing of Environment, 2022, 277, 113071.	11.0	12
60	On light bulbs and marbles. Transfer times and teleconnections in plant fluid transport systems. New Phytologist, 2010, 187, 888-891.	7.3	11
61	Xylem diameter changes during osmotic stress, desiccation and freezing inPinus sylvestrisandPopulus tremula. Tree Physiology, 2016, 37, 491-500.	3.1	11
62	A mechanistic model of winter stem diameter dynamics reveals the time constant of diameter changes and the elastic modulus across tissues and species. Agricultural and Forest Meteorology, 2019, 272-273, 20-29.	4.8	11
63	Stem emissions of monoterpenes, acetaldehyde and methanol from Scots pine (Pinus sylvestris L.) affected by treeâ€“water relations and cambial growth. Plant, Cell and Environment, 2020, 43, 1751-1765.	5.7	11
64	Terrestrial laser scanning intensity captures diurnal variation in leaf water potential. Remote Sensing of Environment, 2021, 255, 112274.	11.0	11
65	Turgor-limited predictions of tree growth, height and metabolic scaling over tree lifespans. Tree Physiology, 2022, 42, 229-252.	3.1	11
66	Exploring optimal stomatal control under alternative hypotheses for the regulation of plant sources and sinks. New Phytologist, 2022, 233, 639-654.	7.3	11
67	Temporal and Spatial Variation in Scots Pine Resin Pressure and Composition. Frontiers in Forests and Global Change, 2019, 2, .	2.3	9
68	Bark Transpiration Rates Can Reach Needle Transpiration Rates Under Dry Conditions in a Semi-arid Forest. Frontiers in Plant Science, 2021, 12, 790684.	3.6	9
69	Dynamic Surface Tension Enhances the Stability of Nanobubbles in Xylem Sap. Frontiers in Plant Science, 2021, 12, 732701.	3.6	9
70	Introduction to the invited issue on phloem function and dysfunction. Tree Physiology, 2019, 39, 167-172.	3.1	8
71	Assessing Environmental Control of Sap Flux of Three Tree Species Plantations in Degraded Hilly Lands in South China. Forests, 2020, 11, 206.	2.1	8
72	Scots Pine Stems as Dynamic Sources of Monoterpene and Methanol Emissions. Frontiers in Forests and Global Change, 2020, 2, .	2.3	8

#	Article	IF	Citations
73	Ecophysiological Aspects of Phloem Transport in Trees. Plant Ecophysiology, 2014, , 25-36.	1.5	6
74	Branch age and light conditions determine leaf-area-specific conductivity in current shoots of Scots pine. Tree Physiology, 2016, 36, 994-1006.	3.1	6
75	A model bridging waterlogging, stomatal behavior and water use in trees in drained peatland. Tree Physiology, 2022, , .	3.1	6
76	Tree Water Status Affects Tree Branch Position. Forests, 2022, 13, 728.	2.1	6
77	MODELLING THE EFFECT OF XYLEM AND PHLOEM TRANSPORT ON LEAF GAS EXCHANGE. Acta Horticulturae, 2013, , 351-358.	0.2	5
78	Is Decreased Xylem Sap Surface Tension Associated With Embolism and Loss of Xylem Hydraulic Conductivity in Pathogen-Infected Norway Spruce Saplings?. Frontiers in Plant Science, 2020, 11, 1090.	3.6	5
79	Plant Water Transport and Cavitation. NATO Science for Peace and Security Series C: Environmental Security, 2014, , 173-181.	0.2	4
80	THE EFFECTS OF HEAT STORAGE DURING LOW FLOW RATES ON THE OUTPUT OF GRANIER-TYPE SAP-FLOW SENSORS. Acta Horticulturae, 2009, , 45-52.	0.2	4
81	Drought effects on volatile organic compound emissions from Scots pine stems. Plant, Cell and Environment, 2021, , .	5.7	4
82	Silver birch ability to refill fully embolised xylem conduits under tension. Acta Horticulturae, 2018, , 67-74.	0.2	3
83	Current-year shoot hydraulic structure in two boreal conifersâ€"implications of growth habit on water potential. Tree Physiology, 2019, 39, 1995-2007.	3.1	3
84	Propagating ice front induces gas bursts and ultrasonic acoustic emissions from freezing xylem. Tree Physiology, 2020, 40, 170-182.	3.1	3
85	Adaptation of Abies fargesii var. faxoniana (Rehder et E.H. Wilson) Tang S Liu seedlings to high altitude in a subalpine forest in southwestern China with special reference to phloem and xylem traits. Annals of Forest Science, 2021, 78, 1.	2.0	3
86	Weaker Light Response, Lower Stomatal Conductance and Structural Changes in Old Boreal Conifers Implied by a Bayesian Hierarchical Model. Frontiers in Plant Science, 2020, 11, 579319.	3.6	2
87	Belowground hydraulic conductance in a mature boreal Scots pine tree. Acta Horticulturae, 2018, , 103-108.	0.2	1
88	Measurement of Inner Bark and Leaf Osmolality. Methods in Molecular Biology, 2019, 2014, 135-142.	0.9	1
89	Fluxes of Carbon, Water and Nutrients. , 2013, , 225-328.		0