

Brendan Choat

List of Publications by Year in descending order

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Version: 2024-02-01

117
papers

14,684
citations

26630

56
h-index

20358

116
g-index

123
all docs

123
docs citations

123
times ranked

10923
citing authors

#	ARTICLE	IF	CITATIONS
1	Global convergence in the vulnerability of forests to drought. <i>Nature</i> , 2012, 491, 752-755.	27.8	1,944
2	TRY plant trait database "enhanced coverage and open access. <i>Global Change Biology</i> , 2020, 26, 119-188.	9.5	1,038
3	Triggers of tree mortality under drought. <i>Nature</i> , 2018, 558, 531-539.	27.8	957
4	Meta-analysis reveals that hydraulic traits explain cross-species patterns of drought-induced tree mortality across the globe. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 5024-5029.	7.1	554
5	Structure and function of bordered pits: new discoveries and impacts on whole-plant hydraulic function. <i>New Phytologist</i> , 2008, 177, 608-626.	7.3	486
6	Weak tradeoff between xylem safety and xylem-specific hydraulic efficiency across the world's woody plant species. <i>New Phytologist</i> , 2016, 209, 123-136.	7.3	466
7	Hanging by a thread? Forests and drought. <i>Science</i> , 2020, 368, 261-266.	12.6	431
8	Testing hypotheses that link wood anatomy to cavitation resistance and hydraulic conductivity in the genus <i>Acer</i> . <i>New Phytologist</i> , 2011, 190, 709-723.	7.3	393
9	The correlations and sequence of plant stomatal, hydraulic, and wilting responses to drought. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 13098-13103.	7.1	362
10	The Dynamics of Embolism Repair in Xylem: In Vivo Visualizations Using High-Resolution Computed Tomography. <i>Plant Physiology</i> , 2010, 154, 1088-1095.	4.8	335
11	Methods for measuring plant vulnerability to cavitation: a critical review. <i>Journal of Experimental Botany</i> , 2013, 64, 4779-4791.	4.8	319
12	Morphological variation of intervessel pit membranes and implications to xylem function in angiosperms. <i>American Journal of Botany</i> , 2009, 96, 409-419.	1.7	258
13	Trees tolerate an extreme heatwave via sustained transpirational cooling and increased leaf thermal tolerance. <i>Global Change Biology</i> , 2018, 24, 2390-2402.	9.5	242
14	Linking hydraulic traits to tropical forest function in a size-structured and trait-driven model (TFSv1-Hydro). <i>Geoscientific Model Development</i> , 2016, 9, 4227-4255.	3.6	211
15	The role of freezing in setting the latitudinal limits of mangrove forests. <i>New Phytologist</i> , 2007, 173, 576-583.	7.3	208
16	Pit Membrane Porosity and Water Stress-Induced Cavitation in Four Co-Existing Dry Rainforest Tree Species. <i>Plant Physiology</i> , 2003, 131, 41-48.	4.8	207
17	Diversity of hydraulic traits in nine <i>Cordia</i> species growing in tropical forests with contrasting precipitation. <i>New Phytologist</i> , 2007, 175, 686-698.	7.3	184
18	In Vivo Visualizations of Drought-Induced Embolism Spread in <i>Vitis vinifera</i> . <i>Plant Physiology</i> , 2013, 161, 1820-1829.	4.8	179

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19	Hydraulic architecture of deciduous and evergreen dry rainforest tree species from north-eastern Australia. <i>Trees - Structure and Function</i> , 2005, 19, 305-311.	1.9	177
20	Measurement of vulnerability to water stress-induced cavitation in grapevine: a comparison of four techniques applied to a long-veesled species. <i>Plant, Cell and Environment</i> , 2010, 33, no-no.	5.7	175
21	Mechanisms of woody-plant mortality under rising drought, CO2 and vapour pressure deficit. <i>Nature Reviews Earth & Environment</i> , 2022, 3, 294-308.	29.7	163
22	Direct X-Ray Microtomography Observation Confirms the Induction of Embolism upon Xylem Cutting under Tension. <i>Plant Physiology</i> , 2015, 167, 40-43.	4.8	156
23	Changes in pit membrane porosity due to deflection and stretching: the role of vestured pits. <i>Journal of Experimental Botany</i> , 2004, 55, 1569-1575.	4.8	143
24	Noninvasive Measurement of Vulnerability to Drought-Induced Embolism by X-Ray Microtomography. <i>Plant Physiology</i> , 2016, 170, 273-282.	4.8	133
25	Evidence for Hydraulic Vulnerability Segmentation and Lack of Xylem Refilling under Tension. <i>Plant Physiology</i> , 2016, 172, 1657-1668.	4.8	132
26	Synchrotron X-ray microtomography of xylem embolism in <i>Sequoia sempervirens</i> saplings during cycles of drought and recovery. <i>New Phytologist</i> , 2015, 205, 1095-1105.	7.3	127
27	The spatial pattern of air seeding thresholds in mature sugar maple trees. <i>Plant, Cell and Environment</i> , 2005, 28, 1082-1089.	5.7	126
28	fitplc - an R package to fit hydraulic vulnerability curves. <i>The Journal of Plant Hydraulics</i> , 0, 4, e002.	1.0	125
29	The Relationships between Xylem Safety and Hydraulic Efficiency in the Cupressaceae: The Evolution of Pit Membrane Form and Function. <i>Plant Physiology</i> , 2010, 153, 1919-1931.	4.8	123
30	Automated analysis of three-dimensional xylem networks using high-resolution computed tomography. <i>New Phytologist</i> , 2011, 191, 1168-1179.	7.3	122
31	Tree hydraulic traits are coordinated and strongly linked to climate origin across a rainfall gradient. <i>Plant, Cell and Environment</i> , 2018, 41, 646-660.	5.7	120
32	Casting light on xylem vulnerability in an herbaceous species reveals a lack of segmentation. <i>New Phytologist</i> , 2017, 214, 561-569.	7.3	119
33	Rapid hydraulic recovery in <i>Eucalyptus pauciflora</i> after drought: linkages between stem hydraulics and leaf gas exchange. <i>Plant, Cell and Environment</i> , 2014, 37, 617-626.	5.7	112
34	Measurements of stem xylem hydraulic conductivity in the laboratory and field. <i>Methods in Ecology and Evolution</i> , 2012, 3, 685-694.	5.2	110
35	Woody plants optimise stomatal behaviour relative to hydraulic risk. <i>Ecology Letters</i> , 2018, 21, 968-977.	6.4	109
36	Vascular Function in Grape Berries across Development and Its Relevance to Apparent Hydraulic Isolation. <i>Plant Physiology</i> , 2009, 151, 1677-1687.	4.8	108

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37	Elevated [CO_2] does not ameliorate the negative effects of elevated temperature on drought-induced mortality in <i>Eucalyptus radiata</i> seedlings. <i>Plant, Cell and Environment</i> , 2014, 37, 1598-1613.	5.7	108
38	Linking physiological processes with mangrove forest structure: phosphorus deficiency limits canopy development, hydraulic conductivity and photosynthetic carbon gain in dwarf <i>Rhizophora</i> mangle. <i>Plant, Cell and Environment</i> , 2006, 29, 793-802.	5.7	102
39	Drought response strategies and hydraulic traits contribute to mechanistic understanding of plant dry-down to hydraulic failure. <i>Tree Physiology</i> , 2019, 39, 910-924.	3.1	96
40	Carbon dynamics of eucalypt seedlings exposed to progressive drought in elevated [CO_2] and elevated temperature. <i>Tree Physiology</i> , 2013, 33, 779-792.	3.1	91
41	Stomatal and non-stomatal limitations of photosynthesis for four tree species under drought: A comparison of model formulations. <i>Agricultural and Forest Meteorology</i> , 2017, 247, 454-466.	4.8	91
42	Direct measurements of intervessel pit membrane hydraulic resistance in two angiosperm tree species. <i>American Journal of Botany</i> , 2006, 93, 993-1000.	1.7	86
43	An empirical method that separates irreversible stem radial growth from bark water content changes in trees: theory and case studies. <i>Plant, Cell and Environment</i> , 2017, 40, 290-303.	5.7	86
44	Toward an index of desiccation time to tree mortality under drought. <i>Plant, Cell and Environment</i> , 2016, 39, 2342-2345.	5.7	83
45	Identifying areas at risk of drought-induced tree mortality across South-Eastern Australia. <i>Global Change Biology</i> , 2020, 26, 5716-5733.	9.5	79
46	Leaf economics and plant hydraulics drive leaf : wood area ratios. <i>New Phytologist</i> , 2019, 224, 1544-1556.	7.3	77
47	Plant water potential improves prediction of empirical stomatal models. <i>PLoS ONE</i> , 2017, 12, e0185481.	2.5	77
48	Xylem traits mediate a trade-off between resistance to freeze-thaw-induced embolism and photosynthetic capacity in overwintering evergreens. <i>New Phytologist</i> , 2011, 191, 996-1005.	7.3	74
49	Are needles of <i>Pinus pinaster</i> more vulnerable to xylem embolism than branches? New insights from X-ray computed tomography. <i>Plant, Cell and Environment</i> , 2016, 39, 860-870.	5.7	74
50	AusTraits, a curated plant trait database for the Australian flora. <i>Scientific Data</i> , 2021, 8, 254.	5.3	73
51	Predicting thresholds of drought-induced mortality in woody plant species. <i>Tree Physiology</i> , 2013, 33, 669-671.	3.1	71
52	Hydraulic failure and tree size linked with canopy dieback in eucalypt forest during extreme drought. <i>New Phytologist</i> , 2021, 230, 1354-1365.	7.3	70
53	Stem and leaf hydraulic properties are finely coordinated in three tropical rain forest tree species. <i>Plant, Cell and Environment</i> , 2015, 38, 2652-2661.	5.7	69
54	Coordination between leaf, stem, and root hydraulics and gas exchange in three arid-zone angiosperms during severe drought and recovery. <i>Plant, Cell and Environment</i> , 2018, 41, 2869-2881.	5.7	69

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55	Drought responses of two gymnosperm species with contrasting stomatal regulation strategies under elevated [CO ₂] and temperature. <i>Tree Physiology</i> , 2015, 35, 756-770.	3.1	66
56	Desiccation time during drought is highly predictable across species of <i>Eucalyptus</i> from contrasting climates. <i>New Phytologist</i> , 2019, 224, 632-643.	7.3	65
57	Linking Forest Flammability and Plant Vulnerability to Drought. <i>Forests</i> , 2020, 11, 779.	2.1	64
58	Intervascular pit membranes with a torus in the wood of <i>Ulmus</i> (Ulmaceae) and related genera. <i>New Phytologist</i> , 2004, 163, 51-59.	7.3	61
59	Visualization of xylem embolism by X-ray microtomography: a direct test against hydraulic measurements. <i>New Phytologist</i> , 2017, 214, 890-898.	7.3	61
60	Xylem vessel relays contribute to radial connectivity in grapevine stems (<i>Vitis vinifera</i> and <i>V.</i>) <i>Journal of Experimental Botany</i> , 2017, 68, 1787-1800.	1.7	60
61	Plasticity in Vulnerability to Cavitation of <i>Pinus canariensis</i> Occurs Only at the Driest End of an Aridity Gradient. <i>Frontiers in Plant Science</i> , 2016, 7, 769.	3.6	60
62	Species climate range influences hydraulic and stomatal traits in <i>Eucalyptus</i> species. <i>Annals of Botany</i> , 2017, 120, 123-133.	2.9	60
63	More than iso/anisohdry: Hydroscaapes integrate plant water use and drought tolerance traits in 10 eucalypt species from contrasting climates. <i>Functional Ecology</i> , 2019, 33, 1035-1049.	3.6	60
64	Increasing leaf hydraulic conductance with transpiration rate minimizes the water potential drawdown from stem to leaf. <i>Journal of Experimental Botany</i> , 2015, 66, 1303-1315.	4.8	58
65	Is embolism resistance in plant xylem associated with quantity and characteristics of lignin?. <i>Trees - Structure and Function</i> , 2018, 32, 349-358.	1.9	58
66	Xylem resistance to embolism: presenting a simple diagnostic test for the open vessel artefact. <i>New Phytologist</i> , 2017, 215, 489-499.	7.3	56
67	Leaf gas exchange performance and the lethal water potential of five European species during drought. <i>Tree Physiology</i> , 2016, 36, tpv117.	3.1	55
68	Embracing 3D Complexity in Leaf Carbon-Water Exchange. <i>Trends in Plant Science</i> , 2019, 24, 15-24.	8.8	55
69	Cavitation Resistance in Seedless Vascular Plants: The Structure and Function of Interconduit Pit Membranes. <i>Plant Physiology</i> , 2014, 165, 895-904.	4.8	53
70	An inconvenient truth about xylem resistance to embolism in the model species for refilling <i>Laurus nobilis</i> L.. <i>Annals of Forest Science</i> , 2018, 75, 1.	2.0	53
71	Centrifuge technique consistently overestimates vulnerability to water stress-induced cavitation in grapevines as confirmed with high-resolution computed tomography. <i>New Phytologist</i> , 2012, 196, 661-665.	7.3	50
72	Living on the edge: A continental-scale assessment of forest vulnerability to drought. <i>Global Change Biology</i> , 2021, 27, 3620-3641.	9.5	50

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73	Seasonal patterns of leaf gas exchange and water relations in dry rain forest trees of contrasting leaf phenology. <i>Tree Physiology</i> , 2006, 26, 657-664.	3.1	49
74	New insights into bordered pit structure and cavitation resistance in angiosperms and conifers. <i>New Phytologist</i> , 2009, 182, 557-560.	7.3	49
75	Coordination of stem and leaf traits define different strategies to regulate water loss and tolerance ranges to aridity. <i>New Phytologist</i> , 2021, 230, 497-509.	7.3	49
76	Dynamics of freeze-thaw embolism in <i>Smilax rotundifolia</i> (Smilacaceae). <i>American Journal of Botany</i> , 2007, 94, 640-649.	1.7	48
77	Is xylem of angiosperm leaves less resistant to embolism than branches? Insights from microCT, hydraulics, and anatomy. <i>Journal of Experimental Botany</i> , 2018, 69, 5611-5623.	4.8	46
78	Water, nitrogen and phosphorus use efficiencies of four tree species in response to variable water and nutrient supply. <i>Plant and Soil</i> , 2016, 406, 187-199.	3.7	43
79	Non-invasive imaging shows no evidence of embolism repair after drought in tree species of two genera. <i>Tree Physiology</i> , 2019, 39, 113-121.	3.1	41
80	Leaf water potential measurements using the pressure chamber: Synthetic testing of assumptions towards best practices for precision and accuracy. <i>Plant, Cell and Environment</i> , 2022, 45, 2037-2061.	5.7	40
81	Visual and hydraulic techniques produce similar estimates of cavitation resistance in woody species. <i>New Phytologist</i> , 2020, 228, 884-897.	7.3	37
82	Xylem Embolism Spreads by Single-Conduit Events in Three Dry Forest Angiosperm Stems. <i>Plant Physiology</i> , 2020, 184, 212-222.	4.8	33
83	Using High Resolution Computed Tomography to Visualize the Three Dimensional Structure and Function of Plant Vasculature. <i>Journal of Visualized Experiments</i> , 2013, , .	0.3	32
84	Hydraulic prediction of drought-induced plant dieback and topkill depends on leaf habit and growth form. <i>Ecology Letters</i> , 2021, 24, 2350-2363.	6.4	31
85	The effects of Pierce's disease on leaf and petiole hydraulic conductance in <i>Vitis vinifera</i> cv. Chardonnay. <i>Physiologia Plantarum</i> , 2009, 136, 384-394.	5.2	28
86	Pit membranes in tracheary elements of Rosaceae and related families: new records of tori and pseudotori. <i>American Journal of Botany</i> , 2007, 94, 503-514.	1.7	27
87	Lack of vulnerability segmentation in four angiosperm tree species: evidence from direct X-ray microtomography observation. <i>Annals of Forest Science</i> , 2020, 77, 1.	2.0	26
88	Xylem embolism measured retrospectively is linked to canopy dieback in natural populations of <i>Eucalyptus piperita</i> following drought. <i>Tree Physiology</i> , 2018, 38, 1193-1199.	3.1	25
89	Incorporating non-stomatal limitation improves the performance of leaf and canopy models at high vapour pressure deficit. <i>Tree Physiology</i> , 2019, 39, 1961-1974.	3.1	24
90	Drought resistance of cotton (<i>Gossypium hirsutum</i>) is promoted by early stomatal closure and leaf shedding. <i>Functional Plant Biology</i> , 2020, 47, 91.	2.1	23

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91	On research priorities to advance understanding of the safety–efficiency tradeoff in xylem. <i>New Phytologist</i> , 2016, 211, 1156-1158.	7.3	21
92	CO2 availability influences hydraulic function of C3 and C4 grass leaves. <i>Journal of Experimental Botany</i> , 2018, 69, 2731-2741.	4.8	21
93	A unique web resource for physiology, ecology and the environmental sciences: PrometheusWiki. <i>Functional Plant Biology</i> , 2010, 37, 687.	2.1	20
94	One Stomatal Model to Rule Them All? Toward Improved Representation of Carbon and Water Exchange in Global Models. <i>Journal of Advances in Modeling Earth Systems</i> , 2022, 14, .	3.8	20
95	Non-invasive imaging reveals convergence in root and stem vulnerability to cavitation across five tree species. <i>Journal of Experimental Botany</i> , 2020, 71, 6623-6637.	4.8	19
96	Mechanisms of xylem hydraulic recovery after drought in <i>Eucalyptus saligna</i> . <i>Plant, Cell and Environment</i> , 2022, 45, 1216-1228.	5.7	19
97	How drought and deciduousness shape xylem plasticity in three Costa Rican woody plant species. <i>IAWA Journal</i> , 2014, 35, 337-355.	2.7	17
98	Mitigating the open vessel artefact in centrifuge-based measurement of embolism resistance. <i>Tree Physiology</i> , 2019, 39, 143-155.	3.1	17
99	Stability of tropical forest tree carbon–water relations in a rainfall exclusion treatment through shifts in effective water uptake depth. <i>Global Change Biology</i> , 2021, 27, 6454-6466.	9.5	17
100	Testing the limits of plant drought stress and subsequent recovery in four provenances of a widely distributed subtropical tree species. <i>Plant, Cell and Environment</i> , 2022, 45, 1187-1203.	5.7	13
101	Towards species-level forecasts of drought-induced tree mortality risk. <i>New Phytologist</i> , 2022, 235, 94-110.	7.3	12
102	Drought-related leaf functional traits control spatial and temporal dynamics of live fuel moisture content. <i>Agricultural and Forest Meteorology</i> , 2022, 319, 108941.	4.8	11
103	Non-invasive measurement of leaf water content and pressure–volume curves using terahertz radiation. <i>Scientific Reports</i> , 2020, 10, 21028.	3.3	9
104	High safety margins to drought-induced hydraulic failure found in five pasture grasses. <i>Plant, Cell and Environment</i> , 2022, 45, 1631-1646.	5.7	9
105	Warming Reduces Net Carbon Gain and Productivity in <i>Medicago sativa</i> L. and <i>Festuca arundinacea</i> . <i>Agronomy</i> , 2020, 10, 1601.	3.0	8
106	Tapping into the physiological responses to mistletoe infection during heat and drought stress. <i>Tree Physiology</i> , 2022, 42, 523-536.	3.1	8
107	Drought tolerance traits do not vary across sites differing in water availability in <i>Banksia serrata</i> (Proteaceae). <i>Functional Plant Biology</i> , 2019, 46, 624.	2.1	7
108	Temperature alters the response of hydraulic architecture to CO2 in cotton plants (<i>Gossypium</i>)	4.2	7

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109	Variation in Xylem Hydraulic Structure and Function of Two Mangrove Species across a Latitudinal Gradient in Eastern Australia. <i>Water</i> (Switzerland), 2021, 13, 850.	2.7	7
110	Maximum-likelihood estimation of xylem vessel length distributions. <i>Journal of Theoretical Biology</i> , 2018, 455, 329-341.	1.7	6
111	Unlocking Drought-Induced Tree Mortality: Physiological Mechanisms to Modeling. <i>Frontiers in Plant Science</i> , 2022, 13, 835921.	3.6	6
112	In situ Turgor Stability in Grape Mesocarp Cells and Its Relation to Cell Dimensions and Microcapillary Tip Size and Geometry. <i>Environmental Control in Biology</i> , 2011, 49, 61-73.	0.7	5
113	Conduit position and connectivity affect the likelihood of xylem embolism during natural drought in evergreen woodland species. <i>Annals of Botany</i> , 2022, 130, 431-444.	2.9	5
114	Vulnerability to xylem cavitation of <i>Hakea</i> species (Proteaceae) from a range of biomes and life histories predicted by climatic niche. <i>Annals of Botany</i> , 2021, 127, 909-918.	2.9	4
115	The Role of Hydraulic Failure in a Massive Mangrove Die-Off Event. <i>Frontiers in Plant Science</i> , 2022, 13, 822136.	3.6	3
116	The carbon cost of the 2019â€“20 Australian fires varies with fire severity and forest type. <i>Global Ecology and Biogeography</i> , 2022, 31, 2131-2146.	5.8	3
117	PUTTING THE PUZZLE TOGETHER: INVESTIGATING HYDRAULIC FUNCTIONING AND WATER TRANSPORT AT HIGH SPATIAL RESOLUTION IN TALL TREES. <i>Acta Horticulturae</i> , 2013, , 245-251.	0.2	1