

# Craig R Brodersen

## List of Publications by Year in descending order

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Version: 2024-02-01

91  
papers

6,022  
citations

76196

40  
h-index

79541

73  
g-index

102  
all docs

102  
docs citations

102  
times ranked

5633  
citing authors

#	ARTICLE	IF	CITATIONS
1	Triggers of tree mortality under drought. <i>Nature</i> , 2018, 558, 531-539.	13.7	957
2	The Dynamics of Embolism Repair in Xylem: In Vivo Visualizations Using High-Resolution Computed Tomography. <i>Plant Physiology</i> , 2010, 154, 1088-1095.	2.3	335
3	Maintenance of xylem Network Transport Capacity: A Review of Embolism Repair in Vascular Plants. <i>Frontiers in Plant Science</i> , 2013, 4, 108.	1.7	248
4	Outside-Xylem Vulnerability, Not Xylem Embolism, Controls Leaf Hydraulic Decline during Dehydration. <i>Plant Physiology</i> , 2017, 173, 1197-1210.	2.3	195
5	Do changes in light direction affect absorption profiles in leaves?. <i>Functional Plant Biology</i> , 2010, 37, 403.	1.1	185
6	In Vivo Visualizations of Drought-Induced Embolism Spread in <i>Vitis vinifera</i> . <i>Plant Physiology</i> , 2013, 161, 1820-1829.	2.3	179
7	Measurement of vulnerability to water stress-induced cavitation in grapevine: a comparison of four techniques applied to a long-veined species. <i>Plant, Cell and Environment</i> , 2010, 33, no-no.	2.8	175
8	Direct X-Ray Microtomography Observation Confirms the Induction of Embolism upon Xylem Cutting under Tension. <i>Plant Physiology</i> , 2015, 167, 40-43.	2.3	156
9	A new paradigm in leaf-level photosynthesis: direct and diffuse lights are not equal. <i>Plant, Cell and Environment</i> , 2008, 31, 159-164.	2.8	136
10	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.	3.5	127
11	Automated analysis of three-dimensional xylem networks using high-resolution computed tomography. <i>New Phytologist</i> , 2011, 191, 1168-1179.	3.5	122
12	Mechanical Failure of Fine Root Cortical Cells Initiates Plant Hydraulic Decline during Drought. <i>Plant Physiology</i> , 2016, 172, 1669-1678.	2.3	120
13	Leaf vein xylem conduit diameter influences susceptibility to embolism and hydraulic decline. <i>New Phytologist</i> , 2017, 213, 1076-1092.	3.5	102
14	The Scaling of Genome Size and Cell Size Limits Maximum Rates of Photosynthesis with Implications for Ecological Strategies. <i>International Journal of Plant Sciences</i> , 2020, 181, 75-87.	0.6	96
15	Do epidermal lens cells facilitate the absorptance of diffuse light?. <i>American Journal of Botany</i> , 2007, 94, 1061-1066.	0.8	94
16	Grapevine species from varied native habitats exhibit differences in embolism formation/repair associated with leaf gas exchange and root pressure. <i>Plant, Cell and Environment</i> , 2015, 38, 1503-1513.	2.8	85
17	In Situ Visualization of the Dynamics in Xylem Embolism Formation and Removal in the Absence of Root Pressure: A Study on Excised Grapevine Stems. <i>Plant Physiology</i> , 2016, 171, 1024-1036.	2.3	85
18	Bark water uptake promotes localized hydraulic recovery in coastal redwood crown. <i>Plant, Cell and Environment</i> , 2016, 39, 320-328.	2.8	84

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19	Grapevine petioles are more sensitive to drought induced embolism than stems: evidence from <i>in vivo</i> MRI and microcomputed tomography observations of hydraulic vulnerability segmentation. <i>Plant, Cell and Environment</i> , 2016, 39, 1886-1894.	2.8	82
20	New frontiers in the three-dimensional visualization of plant structure and function. <i>American Journal of Botany</i> , 2016, 103, 184-188.	0.8	81
21	The physiological resilience of fern sporophytes and gametophytes: advances in water relations offer new insights into an old lineage. <i>Frontiers in Plant Science</i> , 2013, 4, 285.	1.7	79
22	The Parenchyma of Secondary Xylem and Its Critical Role in Tree Defense against Fungal Decay in Relation to the CODIT Model. <i>Frontiers in Plant Science</i> , 2016, 7, 1665.	1.7	79
23	Functional Status of Xylem Through Time. <i>Annual Review of Plant Biology</i> , 2019, 70, 407-433.	8.6	79
24	Beyond Porosity: 3D Leaf Intercellular Airspace Traits That Impact Mesophyll Conductance. <i>Plant Physiology</i> , 2018, 178, 148-162.	2.3	75
25	Visualizing wood anatomy in three dimensions with high-resolution X-ray micro-tomography (µCT) – a review. <i>IAWA Journal</i> , 2013, 34, 408-424.	2.7	64
26	Linking xylem network failure with leaf tissue death. <i>New Phytologist</i> , 2021, 232, 68-79.	3.5	64
27	Leaf architecture and direction of incident light influence mesophyll fluorescence profiles. <i>American Journal of Botany</i> , 2005, 92, 1425-1431.	0.8	62
28	Xylem vessel relays contribute to radial connectivity in grapevine stems ( <i>Vitis vinifera</i> and <i>V. rotundifolia</i> ). <i>Plant Physiology</i> , 2010, 154, 1076-1083.	0.8	60
29	The bias of a two-dimensional view: comparing two-dimensional and three-dimensional mesophyll surface area estimates using noninvasive imaging. <i>New Phytologist</i> , 2017, 215, 1609-1622.	3.5	57
30	Hydraulic conductance and the maintenance of water balance in flowers. <i>Plant, Cell and Environment</i> , 2016, 39, 2123-2132.	2.8	56
31	<i>In vivo</i> visualization of the final stages of xylem vessel refilling in grapevine ( <i>Vitis rotundifolia</i> ). <i>Plant Physiology</i> , 2011, 155, 1076-1083.	3.5	56
32	Measurement of the Optical Properties of Leaves Under Diffuse Light. <i>Photochemistry and Photobiology</i> , 2010, 86, 1076-1083.	1.3	55
33	Embracing 3D Complexity in Leaf Carbon-Water Exchange. <i>Trends in Plant Science</i> , 2019, 24, 15-24.	4.3	55
34	X-ray micro-tomography at the Advanced Light Source. <i>Proceedings of SPIE</i> , 2012, , .	0.8	54
35	Cavitation Resistance in Seedless Vascular Plants: The Structure and Function of Interconduit Pit Membranes. <i>Plant Physiology</i> , 2014, 165, 895-904.	2.3	53
36	Patterns of drought-induced embolism formation and spread in living walnut saplings visualized using X-ray microtomography. <i>Tree Physiology</i> , 2015, 35, 744-755.	1.4	53

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37	Maximum CO <sub>2</sub> diffusion inside leaves is limited by the scaling of cell size and genome size. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2021, 288, 20203145.	1.2	52
38	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.	3.5	50
39	The Causes of Leaf Hydraulic Vulnerability and Its Influence on Gas Exchange in <i>Arabidopsis thaliana</i> . <i>Plant Physiology</i> , 2018, 178, 1584-1601.	2.3	50
40	Differences in grapevine rootstock sensitivity and recovery from drought are linked to fine root cortical lacunae and root tip function. <i>New Phytologist</i> , 2021, 229, 272-283.	3.5	50
41	Hydraulic safety margins and air-seeding thresholds in roots, trunks, branches and petioles of four northern hardwood trees. <i>New Phytologist</i> , 2018, 219, 77-88.	3.5	47
42	The physiological implications of primary xylem organization in two ferns. <i>Plant, Cell and Environment</i> , 2012, 35, 1898-1911.	2.8	42
43	Hydraulic traits are more diverse in flowers than in leaves. <i>New Phytologist</i> , 2019, 223, 193-203.	3.5	42
44	In vivo pressure gradient heterogeneity increases flow contribution of small diameter vessels in grapevine. <i>Nature Communications</i> , 2019, 10, 5645.	5.8	41
45	Identifying the pathways for foliar water uptake in beech ( <i>Fagus sylvatica</i> L.): a major role for trichomes. <i>Plant Journal</i> , 2020, 103, 769-780.	2.8	41
46	Seedling Survival at Timberline Is Critical to Conifer Mountain Forest Elevation and Extent. <i>Frontiers in Forests and Global Change</i> , 2019, 2, .	1.0	40
47	Water relations of <i>Calycanthus</i> flowers: Hydraulic conductance, capacitance, and embolism resistance. <i>Plant, Cell and Environment</i> , 2018, 41, 2250-2262.	2.8	39
48	Spatiotemporal Coupling of Vessel Cavitation and Discharge of Stored Xylem Water in a Tree Sapling. <i>Plant Physiology</i> , 2019, 179, 1658-1668.	2.3	39
49	Genetic variation in photosynthetic characteristics among invasive and native populations of reed canarygrass ( <i>Phalaris arundinacea</i> ). <i>Biological Invasions</i> , 2008, 10, 1317-1325.	1.2	38
50	In vivo quantification of plant starch reserves at micrometer resolution using X-ray micro-CT imaging and machine learning. <i>New Phytologist</i> , 2018, 218, 1260-1269.	3.5	38
51	The Spatial Distribution of Chlorophyll in Leaves. <i>Plant Physiology</i> , 2019, 180, 1406-1417.	2.3	36
52	Phloem Production in Huanglongbing-affected Citrus Trees. <i>Hortscience: A Publication of the American Society for Horticultural Science</i> , 2014, 49, 59-64.	0.5	34
53	Xylem Embolism Spreads by Single-Conduit Events in Three Dry Forest Angiosperm Stems. <i>Plant Physiology</i> , 2020, 184, 212-222.	2.3	33
54	Using High Resolution Computed Tomography to Visualize the Three Dimensional Structure and Function of Plant Vasculature. <i>Journal of Visualized Experiments</i> , 2013, , .	0.2	32

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55	Xylem network connectivity and embolism spread in grapevine ( <i>Vitis vinifera</i> L.). <i>Plant Physiology</i> , 2021, 186, 373-387.	2.3	32
56	Storage Compartments for Capillary Water Rarely Refill in an Intact Woody Plant. <i>Plant Physiology</i> , 2017, 175, 1649-1660.	2.3	31
57	Leaf cell-specific and single-cell transcriptional profiling reveals a role for the palisade layer in UV light protection. <i>Plant Cell</i> , 2022, 34, 3261-3279.	3.1	31
58	Structural organization of the spongy mesophyll. <i>New Phytologist</i> , 2022, 234, 946-960.	3.5	29
59	Photosynthesis during an Episodic Drought in <i>Abies lasiocarpa</i> and <i>Picea engelmannii</i> across an Alpine Treeline. <i>Arctic, Antarctic, and Alpine Research</i> , 2006, 38, 34-41.	0.4	28
60	Excess Diffuse Light Absorption in Upper Mesophyll Limits CO <sub>2</sub> Drawdown and Depresses Photosynthesis. <i>Plant Physiology</i> , 2017, 174, 1082-1096.	2.3	28
61	Water uptake can occur through woody portions of roots and facilitates localized embolism repair in grapevine. <i>New Phytologist</i> , 2018, 218, 506-516.	3.5	28
62	Finding support for theoretical tradeoffs in xylem structure and function. <i>New Phytologist</i> , 2016, 209, 8-10.	3.5	26
63	Analysis of HRCT-derived xylem network reveals reverse flow in some vessels. <i>Journal of Theoretical Biology</i> , 2013, 333, 146-155.	0.8	25
64	Variations in xylem embolism susceptibility under drought between intact saplings of three walnut species. <i>Tree Physiology</i> , 2018, 38, 1180-1192.	1.4	25
65	Digitally deconstructing leaves in 3D using X-ray microcomputed tomography and machine learning. <i>Applications in Plant Sciences</i> , 2020, 8, e11380.	0.8	23
66	Contrasting hydraulic architecture and function in deep and shallow roots of tree species from a semi-arid habitat. <i>Annals of Botany</i> , 2014, 113, 617-627.	1.4	22
67	Whole root system water conductance responds to both axial and radial traits and network topology over natural range of trait variation. <i>Journal of Theoretical Biology</i> , 2018, 456, 49-61.	0.8	22
68	The use of laser light to enhance the uptake of foliar-applied substances into citrus ( <i>Citrus</i> ). <i>Overlock</i> , 2021, 10, 50-2.	0.8	21
69	Natural selection maintains species despite frequent hybridization in the desert shrub <i>Encelia</i> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 33373-33383.	3.3	21
70	The Structure and Function of Xylem in Seed-Free Vascular Plants: An Evolutionary Perspective. , 2015, , 1-37.		20
71	Coordinated decline of leaf hydraulic and stomatal conductances under drought is not linked to leaf xylem embolism for different grapevine cultivars. <i>Journal of Experimental Botany</i> , 2020, 71, 7286-7300.	2.4	18
72	Desiccation of the leaf mesophyll and its implications for CO <sub>2</sub> diffusion and light processing. <i>Plant, Cell and Environment</i> , 2022, 45, 1362-1381.	2.8	15

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73	MicroCT imaging as a tool to study vessel endings in situ. American Journal of Botany, 2017, 104, 1424-1430.	0.8	13
74	Hydraulic conductance, resistance, and resilience: how leaves of a tropical epiphyte respond to drought. American Journal of Botany, 2019, 106, 943-957.	0.8	12
75	The functional implications of tracheary connections across growth rings in four northern hardwood trees. Annals of Botany, 2019, 124, 297-306.	1.4	11
76	Desiccation and rehydration dynamics in the epiphytic resurrection fern <i>Pleopeltis polypodioides</i> . Plant Physiology, 2021, 187, 1501-1518.	2.3	11
77	Diversification, disparification and hybridization in the desert shrubs <i>Encelia</i> . New Phytologist, 2021, 230, 1228-1241.	3.5	10
78	Embolism spread in the primary xylem of <i>Polystichum munitum</i> : implications for water transport during seasonal drought. Plant, Cell and Environment, 2016, 39, 338-346.	2.8	9
79	Seasonal coordination of leaf hydraulics and gas exchange in a wintergreen fern. AoB PLANTS, 2020, 12, plaa048.	1.2	9
80	Hydraulic consequences of enzymatic breakdown of grapevine pit membranes. Plant Physiology, 2021, 186, 1919-1931.	2.3	9
81	Ecologically driven selection of nonstructural carbohydrate storage in oak trees. New Phytologist, 2021, 232, 567-578.	3.5	9
82	The three-dimensional construction of leaves is coordinated with water use efficiency in conifers. New Phytologist, 2022, 233, 851-861.	3.5	9
83	Integrated plant temperature measurement using heat-sensitive paint and colour image analysis. Functional Ecology, 2004, 18, 148-153.	1.7	6
84	Visualizing water transport in roots: advanced imaging tools for an expanding field. Plant and Soil, 2013, 366, 29-32.	1.8	5
85	Influence of dry season on <i>Quercus suber</i> L. leaf traits in the Iberian Peninsula. American Journal of Botany, 2019, 106, 656-666.	0.8	5
86	Anatomical and hydraulic responses to desiccation in emergent conifer seedlings. American Journal of Botany, 2020, 107, 1177-1188.	0.8	5
87	Foliar water uptake does not contribute to embolism repair in beech ( <i>Fagus sylvatica</i> L.). Annals of Botany, 2022, , .	1.4	5
88	Pathogen-induced hydraulic decline limits photosynthesis and starch storage in grapevines ( <i>Vitis</i> sp.). Plant, Cell and Environment, 2022, 45, 1829-1842.	2.8	5
89	Conduit position and connectivity affect the likelihood of xylem embolism during natural drought in evergreen woodland species. Annals of Botany, 2022, 130, 431-444.	1.4	5
90	Laser surgery reveals the biomechanical and chemical signaling functions of aphid siphunculi (cornicles). PLoS ONE, 2018, 13, e0204984.	1.1	3

#	ARTICLE	IF	CITATIONS
91	By the narrowest of margins: nano-scale modification of pit membranes and the fate of plants during drought. A commentary on: "Intervessel pit membrane thickness best explains variation in embolism resistance amongst stems of <i>Arabidopsis thaliana</i> accessions"™. <i>Annals of Botany</i> , 2021, 128, iii-v.	1.4	0