Richard P Phillips

List of Publications by Year
in descending order

124 papers	15,017 citations	20817 60 h-index	19190 118 g-index
132 all docs	132 docs citations	132 times ranked	13826 citing authors

#	Article	IF	Citations
1	Redefining fine roots improves understanding of belowâ€ground contributions to terrestrial biosphere processes. New Phytologist, 2015, 207, 505-518.	7.3	906
2	The mycorrhizalâ€associated nutrient economy: a new framework for predicting carbonâ€“nutrient couplings in temperate forests. New Phytologist, 2013, 199, 41-51.	7.3	737
3	The increasing importance of atmospheric demand for ecosystem water and carbon fluxes. Nature Climate Change, 2016, 6, 1023-1027.	18.8	734
4	The FLUXNET2015 dataset and the ONEFlux processing pipeline for eddy covariance data. Scientific Data, 2020, 7, 225.	5.3	646
5	Enhanced root exudation induces microbial feedbacks to N cycling in a pine forest under longâ€term CO₂ fumigation. Ecology Letters, 2011, 14, 187-194.	6.4	618
6	<scp>CTFS</scp>â€Forest<scp>GEO</scp>: a worldwide network monitoring forests in an era of global change. Global Change Biology, 2015, 21, 528-549.	9.5	473
7	Synthesis and modeling perspectives of rhizosphere priming. New Phytologist, 2014, 201, 31-44.	7.3	436
8	Mycorrhizal association as a primary control of the CO ₂ fertilization effect. Science, 2016, 353, 72-74.	12.6	426
9	Rhizosphere processes are quantitatively important components of terrestrial carbon and nutrient cycles. Global Change Biology, 2015, 21, 2082-2094.	9.5	424
10	Increases in the flux of carbon belowground stimulate nitrogen uptake and sustain the long-term enhancement of forest productivity under elevated CO2. Ecology Letters, 2011, 14, 349-357.	6.4	374
11	Global importance of largeâ€diameter trees. Global Ecology and Biogeography, 2018, 27, 849-864.	5.8	330
12	Microbe-driven turnover offsets mineral-mediated storage of soil carbon under elevated CO2. Nature Climate Change, 2014, 4, 1099-1102.	18.8	309
13	A meta-analysis of 1,119 manipulative experiments on terrestrial carbon-cycling responses to global change. Nature Ecology and Evolution, 2019, 3, 1309-1320.	7.8	304
14	A trade-off between plant and soil carbon storage under elevated CO2. Nature, 2021, 591, 599-603.	27.8	268
15	Roots and fungi accelerate carbon and nitrogen cycling in forests exposed to elevated CO₂. Ecology Letters, 2012, 15, 1042-1049.	6.4	251
16	TREE SPECIES AND MYCORRHIZAL ASSOCIATIONS INFLUENCE THE MAGNITUDE OF RHIZOSPHERE EFFECTS. Ecology, 2006, 87, 1302-1313.	3.2	226
17	Root exudates increase N availability by stimulating microbial turnover of fast-cycling N pools. Soil Biology and Biochemistry, 2017, 106, 119-128.	8.8	222
18	Plant diversity increases with the strength of negative density dependence at the global scale. Science, 2017, 356, 1389-1392.	12.6	222

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19	New approach for capturing soluble root exudates in forest soils. Functional Ecology, 2008, 22, 990-999.	3.6	219
20	The role of isohydric and anisohydric species in determining ecosystem-scale response to severe drought. Oecologia, 2015, 179, 641-654.	2.0	213
21	Stoichiometry constrains microbial response to root exudation- insights from a model and a field experiment in a temperate forest. Biogeosciences, 2013, 10, 821-838.	3.3	197
22	Root-induced changes in nutrient cycling in forests depend on exudation rates. Soil Biology and Biochemistry, 2014, 78, 213-221.	8.8	181
23	Dominant mycorrhizal association of trees alters carbon and nutrient cycling by selecting for microbial groups with distinct enzyme function. New Phytologist, 2017, 214, 432-442.	7.3	173
24	Drought timing and local climate determine the sensitivity of eastern temperate forests to drought. Global Change Biology, 2018, 24, 2339-2351.	9.5	168
25	Tree mycorrhizal type predicts withinâ€site variability in the storage and distribution of soil organic matter. Global Change Biology, 2018, 24, 3317-3330.	9.5	167
26	Mycorrhizal type determines the magnitude and direction of rootâ€induced changes in decomposition in a temperate forest. New Phytologist, 2015, 206, 1274-1282.	7.3	164
27	High atmospheric demand for water can limit forest carbon uptake and transpiration as severely as dry soil. Geophysical Research Letters, 2016, 43, 9686-9695.	4.0	163
28	Fertilization effects on fineroot biomass, rhizosphere microbes and respiratory fluxes in hardwood forest soils. New Phytologist, 2007, 176, 655-664.	7.3	150
29	Beneficial effects of climate warming on boreal tree growth may be transitory. Nature Communications, 2018, 9, 3213.	12.8	150
30	Chronic water stress reduces tree growth and the carbon sink of deciduous hardwood forests. Global Change Biology, 2014, 20, 2531-2539.	9.5	148
31	Exploring the role of ectomycorrhizal fungi in soil carbon dynamics. New Phytologist, 2019, 223, 33-39.	7.3	147
32	Ecosystem responses to elevated <scp>CO</scp>₂ governed by plantâ€“soil interactions and the cost of nitrogen acquisition. New Phytologist, 2018, 217, 507-522.	7.3	139
33	Carbon cost of plant nitrogen acquisition: global carbon cycle impact from an improved plant nitrogen cycle in theÂCommunity Land Model. Global Change Biology, 2016, 22, 1299-1314.	9.5	137
34	Modeling the carbon cost of plant nitrogen acquisition: Mycorrhizal trade-offs and multipath resistance uptake improve predictions of retranslocation. Journal of Geophysical Research G: Biogeosciences, 2014, 119, 1684-1697.	3.0	133
35	Forest biogeochemistry in response to drought. Global Change Biology, 2016, 22, 2318-2328.	9.5	133
36	Linking drought legacy effects across scales: From leaves to tree rings to ecosystems. Global Change Biology, 2019, 25, 2978-2992.	9.5	133

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37	Pushing precipitation to the extremes in distributed experiments: recommendations for simulating wet and dry years. Global Change Biology, 2017, 23, 1774-1782.	9.5	132
38	Elevated CO2 increases root exudation from loblolly pine (Pinus taeda) seedlings as an N-mediated response. Tree Physiology, 2009, 29, 1513-1523.	3.1	131
39	Greenness indices from digital cameras predict the timing and seasonal dynamics of canopyâ€scale photosynthesis. Ecological Applications, 2015, 25, 99-115.	3.8	129
40	ForestGEO: Understanding forest diversity and dynamics through a global observatory network. Biological Conservation, 2021, 253, 108907.	4.1	122
41	Phosphorus cycling in deciduous forest soil differs between stands dominated by ectoâ€•and arbuscular mycorrhizal trees. New Phytologist, 2016, 209, 1184-1195.	7.3	118
42	Variations in the influence of diffuse light on gross primary productivity in temperate ecosystems. Agricultural and Forest Meteorology, 2015, 201, 98-110.	4.8	114
43	Feedbacks between plant N demand and rhizosphere priming depend on type of mycorrhizal association. Ecology Letters, 2017, 20, 1043-1053.	6.4	114
44	Shifts in dominant tree mycorrhizal associations in response to anthropogenic impacts. Science Advances, 2019, 5, eaav6358.	10.3	107
45	Drought legacies are dependent on water table depth, wood anatomy and drought timing across the eastern US. Ecology Letters, 2019, 22, 119-127.	6.4	106
46	Leaf litter decay rates differ between mycorrhizal groups in temperate, but not tropical, forests. New Phytologist, 2019, 222, 556-564.	7.3	100
47	The three major axes of terrestrial ecosystem function. Nature, 2021, 598, 468-472.	27.8	99
48	Faster turnover of new soil carbon inputs under increased atmospheric <scp>CO</scp>₂. Global Change Biology, 2017, 23, 4420-4429.	9.5	96
49	Positive feedbacks to growth of an invasive grass through alteration of nitrogen cycling. Oecologia, 2012, 170, 457-465.	2.0	94
50	Response of ecosystem intrinsic water use efficiency and gross primary productivity to rising vapor pressure deficit. Environmental Research Letters, 2019, 14, 074023.	5.2	94
51	A belowground perspective on the drought sensitivity of forests: Towards improved understanding and simulation. Forest Ecology and Management, 2016, 380, 309-320.	3.2	92
52	Fast-decaying plant litter enhances soil carbon in temperate forests but not through microbial physiological traits. Nature Communications, 2022, 13, 1229.	12.8	92
53	Local spatial structure of forest biomass and its consequences for remote sensing of carbon stocks. Biogeosciences, 2014, 11, 6827-6840.	3.3	89
54	Decay rates of leaf litters from arbuscular mycorrhizal trees are more sensitive to soil effects than litters from ectomycorrhizal trees. Journal of Ecology, 2015, 103, 1454-1463.	4.0	85

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55	The rhizosphere and hyphosphere differ in their impacts on carbon and nitrogen cycling in forests exposed to elevated <scp>CO</scp>₂. New Phytologist, 2015, 205, 1164-1174.	7.3	84
56	Patterns of rhizosphere carbon flux in sugar maple (Acer saccharum) and yellow birch (Betula) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 702	9.5	80
57	Rootâ€derived inputs are major contributors to soil carbon in temperate forests, but vary by mycorrhizal type. Ecology Letters, 2021, 24, 626-635.	6.4	75
58	Linking variation in intrinsic waterâ€use efficiency to isohydricity: aÂcomparison at multiple spatiotemporal scales. New Phytologist, 2019, 221, 195-208.	7.3	69
59	Interactions among decaying leaf litter, root litter and soil organic matter vary with mycorrhizal type. Journal of Ecology, 2018, 106, 502-513.	4.0	67
60	Microbial mechanisms and ecosystem flux estimation for aerobic NO _y emissions from deciduous forest soils. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 2138-2145.	7.1	66
61	Changes in photosynthesis and soil moisture drive the seasonal soil respiration-temperature hysteresis relationship. Agricultural and Forest Meteorology, 2018, 259, 184-195.	4.8	65
62	Mycorrhizal associations of dominant trees influence nitrate leaching responses to N deposition. Biogeochemistry, 2014, 117, 241-253.	3.5	64
63	The Influence of Soil Fertility on Rhizosphere Effects in Northern Hardwood Forest Soils. Soil Science Society of America Journal, 2008, 72, 453-461.	2.2	62
64	Resource stoichiometry and the biogeochemical consequences of nitrogen deposition in a mixed deciduous forest. Ecology, 2016, 97, 3369-3378.	3.2	62
65	Soil carbon cycling proxies: Understanding their critical role in predicting climate change feedbacks. Global Change Biology, 2018, 24, 895-905.	9.5	61
66	Fungal communities influence root exudation rates in pine seedlings. FEMS Microbiology Ecology, 2013, 83, 585-595.	2.7	60
67	Exploring the transport of plant metabolites using positron emitting radiotracers. HFSP Journal, 2008, 2, 189-204.	2.5	55
68	Foliar nutrient resorption differs between arbuscular mycorrhizal and ectomycorrhizal trees at local and global scales. Global Ecology and Biogeography, 2018, 27, 875-885.	5.8	55
69	Improved global simulations of gross primary product based on a new definition of water stress factor and a separate treatment of C3 and C4 plants. Ecological Modelling, 2015, 297, 42-59.	2.5	53
70	Anisohydric behavior linked to persistent hydraulic damage and delayed drought recovery across seven North American tree species. New Phytologist, 2019, 222, 1862-1872.	7.3	51
71	COSORE: A community database for continuous soil respiration and other soilâ€atmosphere greenhouse gas flux data. Global Change Biology, 2020, 26, 7268-7283.	9.5	50
72	Effects of changing precipitation regimes on dryland soil respiration and C pool dynamics at rainfall event, seasonal and interannual scales. Journal of Geophysical Research, 2008, 113, .	3.3	48

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73	Treeâ€mycorrhizal associations detected remotely from canopy spectral properties. Global Change Biology, 2016, 22, 2596-2607.	9.5	45
74	Mycorrhizal associations and the spatial structure of an old-growth forest community. Oecologia, 2018, 186, 195-204.	2.0	44
75	Nitrogen cycling microbiomes are structured by plant mycorrhizal associations with consequences for nitrogen oxide fluxes in forests. Global Change Biology, 2021, 27, 1068-1082.	9.5	41
76	Myceliaâ€derived C contributes more to nitrogen cycling than rootâ€derived C in ectomycorrhizal alpine forests. Functional Ecology, 2019, 33, 346-359.	3.6	37
77	Stable isotopes reveal that fungal residues contribute more to mineral-associated organic matter pools than plant residues. Soil Biology and Biochemistry, 2022, 168, 108634.	8.8	36
78	An improved approach for remotely sensing water stress impacts on forest C uptake. Global Change Biology, 2014, 20, 2856-2866.	9.5	35
79	Coarse roots prevent declines in whole-tree non-structural carbohydrate pools during drought in an isohydric and an anisohydric species. Tree Physiology, 2018, 38, 582-590.	3.1	35
80	Non-structural carbohydrate pools not linked to hydraulic strategies or carbon supply in tree saplings during severe drought and subsequent recovery. Tree Physiology, 2020, 40, 259-271.	3.1	35
81	Towards a rhizoâ€centric view of plantâ€microbial feedbacks under elevated atmospheric CO 2. New Phytologist, 2007, 173, 664-667.	7.3	33
82	Substrate quality drives fungal necromass decay and decomposer community structure under contrasting vegetation types. Journal of Ecology, 2020, 108, 1845-1859.	4.0	33
83	Evaluating the effect of alternative carbon allocation schemes in a land surface modelÂ(CLM4.5) on carbon fluxes, pools, and turnover in temperate forests. Geoscientific Model Development, 2017, 10, 3499-3517.	3.6	32
84	Resource stoichiometry mediates soil C loss and nutrient transformations in forest soils. Applied Soil Ecology, 2016, 108, 248-257.	4.3	31
85	Patterns of nitrogenâ€fixing tree abundance in forests across Asia and America. Journal of Ecology, 2019, 107, 2598-2610.	4.0	29
86	Demographic shifts in eastern US forests increase the impact of lateâ€season drought on forest growth. Ecography, 2020, 43, 1475-1486.	4.5	27
87	Modeling the Carbon Cost of Plant Nitrogen and Phosphorus Uptake Across Temperate and Tropical Forests. Frontiers in Forests and Global Change, 2020, 3, .	2.3	27
88	The role of ammonium oxidizing communities in mediating effects of an invasive plant on soil nitrification. Soil Biology and Biochemistry, 2015, 90, 266-274.	8.8	26
89	Soil microbial communities buffer physiological responses to drought stress in three hardwood species. Oecologia, 2017, 183, 631-641.	2.0	26
90	Effects of a nonâ€native grass invasion decline over time. Journal of Ecology, 2017, 105, 1475-1484.	4.0	24

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91	Guidelines and considerations for designing field experiments simulating precipitation extremes in forest ecosystems. Methods in Ecology and Evolution, 2018, 9, 2310-2325.	5.2	24
92	Soil Biogenic Volatile Organic Compound Flux in a Mixed Hardwood Forest: Net Uptake at Warmer Temperatures and the Importance of Mycorrhizal Associations. Journal of Geophysical Research G: Biogeosciences, 2020, 125, e2019JG005479.	3.0	23
93	Coupling of plant and mycorrhizal fungal diversity: its occurrence, relevance, and possible implications under global change. New Phytologist, 2022, 234, 1960-1966.	7.3	23
94	Arbuscular mycorrhizal trees cause a higher carbon to nitrogen ratio of soil organic matter decomposition via rhizosphere priming than ectomycorrhizal trees. Soil Biology and Biochemistry, 2021, 157, 108246.	8.8	22
95	Capturing species-level drought responses in a temperate deciduous forest using ratios of photochemical reflectance indices between sunlit and shaded canopies. Remote Sensing of Environment, 2017, 199, 350-359.	11.0	21
96	Tree Canopies Reflect Mycorrhizal Composition. Geophysical Research Letters, 2021, 48, e2021GL092764.	4.0	21
97	Spatial and Temporal Variation in Calcium and Aluminum in Northern Hardwood Forest Floors. Water, Air, and Soil Pollution, 2005, 160, 109-118.	2.4	20
98	Dynamics of stem water uptake among isohydric and anisohydric species experiencing a severe drought. Tree Physiology, 2017, 37, 1379-1392.	3.1	20
99	Neglecting plantâ€"microbe symbioses leads to underestimation of modeled climate impacts. Biogeosciences, 2019, 16, 457-465.	3.3	20
100	Impacts of an invasive grass on soil organic matter pools vary across a tree-mycorrhizal gradient. Biogeochemistry, 2019, 144, 149-164.	3.5	16
101	Relationship Between Belowground Carbon Allocation and Nitrogen Uptake in Saplings Varies by Plant Mycorrhizal Type. Frontiers in Forests and Global Change, 2019, 2, .	2.3	15
102	Mycorrhizal associations of tree species influence soil nitrogen dynamics via effects on soil acidâ€"base chemistry. Global Ecology and Biogeography, 2022, 31, 168-182.	5.8	15
103	Spatio-temporal heterogeneity in extracellular enzyme activities tracks variation in saprotrophic fungal biomass in a temperate hardwood forest. Soil Biology and Biochemistry, 2019, 138, 107600.	8.8	14
104	Organic matter priming by invasive plants depends on dominant mycorrhizal association. Soil Biology and Biochemistry, 2020, 140, 107645.	8.8	14
105	Mycorrhizal Distributions Impact Global Patterns of Carbon and Nutrient Cycling. Geophysical Research Letters, 2021, 48, e2021GL094514.	4.0	14
106	Arbuscular Mycorrhizal Tree Communities Have Greater Soil Fungal Diversity and Relative Abundances of Saprotrophs and Pathogens than Ectomycorrhizal Tree Communities. Applied and Environmental Microbiology, 2022, 88, AEM0178221.	3.1	14
107	Global pattern of soil priming effect intensity and its environmental drivers. Ecology, 2022, 103, .	3.2	14
108	Variation in hyphal production rather than turnover regulates standing fungal biomass in temperate hardwood forests. Ecology, 2021, 102, e03260.	3.2	13

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109	The Effects of AlCl3Additions on Rhizosphere Soil and Fine Root Chemistry of Sugar Maple (Acer) Tj ETQq1 1 0.784314 rgBT /Overlock 1	2.4	12
110	Why Coordinated Distributed Experiments Should Go Global. BioScience, 2021, 71, 918-927.	4.9	12
111	Mycorrhizal effects on decomposition and soil CO₂ flux depend on changes in nitrogen availability during forest succession. Journal of Ecology, 2021, 109, 3929-3943.	4.0	11
112	The xylem of anisohydric <i>Quercus alba</i> L. is more vulnerable to embolism than isohydric codominants. Plant, Cell and Environment, 2022, 45, 329-346.	5.7	10
113	Plant responses to stress impacts: the C we do not see. Tree Physiology, 2017, 37, 151-153.	3.1	9
114	Response to Comment on â€œPlant diversity increases with the strength of negative density dependence at the global scaleâ€. Science, 2018, 360, .	12.6	9
115	Ectomycorrhizal fungi are associated with reduced nitrogen cycling rates in temperate forest soils without corresponding trends in bacterial functional groups. Oecologia, 2021, 196, 863-875.	2.0	9
116	The Drought Response of Eastern US Oaks in the Context of Their Declining Abundance. BioScience, 2022, 72, 333-346.	4.9	9
117	Mycorrhizal roots slow the decay of belowground litters in a temperate hardwood forest. Oecologia, 2021, 197, 743-755.	2.0	8
118	Response to Comment on â€œPlant diversity increases with the strength of negative density dependence at the global scaleâ€. Science, 2018, 360, .	12.6	6
119	Site conditions are more important than abundance for explaining plant invasion impacts on soil nitrogen cycling. Ecosphere, 2018, 9, e02454.	2.2	5
120	An integrated assessment of the potential impacts of climate change on Indiana forests. Climatic Change, 2020, 163, 1917-1931.	3.6	5
121	Response to Comment on â€œMycorrhizal association as a primary control of the CO ₂ fertilization effectâ€. Science, 2017, 355, 358-358.	12.6	4
122	Performing gas-exchange measurements on excised branches - evaluation and recommendations. Photosynthetica, 2021, 59, 61-73.	1.7	4
123	Vapor pressure deficit helps explain biogenic volatile organic compound fluxes from the forest floor and canopy of a temperate deciduous forest. Oecologia, 2021, 197, 971-988.	2.0	4
124	An Intact Soil Core Bioassay for Cultivating Forest Ectomycorrhizal Fungal Communities. , 2017, , 173-190.		1