Matthew D Wallenstein

List of Publications by Year
in descending order

104 papers	21,031 citations	25031 57 h-index	34984 98 g-index
107 all docs	107 docs citations	107 times ranked	18003 citing authors

#	Article	IF	Citations
1	The <scp>M</scp>icrobial <scp>E</scp>fficiencyâ€<scp>M</scp>atrix <scp>S</scp>tabilization (<scp>MEMS</scp>) framework integrates plant litter decomposition with soil organic matter stabilization: do labile plant inputs form stable soil organic matter?. Global Change Biology, 2013, 19, 988-995.	9.5	1,962
2	MICROBIAL STRESS-RESPONSE PHYSIOLOGY AND ITS IMPLICATIONS FOR ECOSYSTEM FUNCTION. Ecology, 2007, 88, 1386-1394.	3.2	1,935
3	Stoichiometry of soil enzyme activity at global scale. Ecology Letters, 2008, 11, 1252-1264.	6.4	1,684
4	Soil enzymes in a changing environment: Current knowledge and future directions. Soil Biology and Biochemistry, 2013, 58, 216-234.	8.8	1,535
5	Soil-carbon response to warming dependent on microbial physiology. Nature Geoscience, 2010, 3, 336-340.	12.9	1,192
6	Temperature and soil organic matter decomposition rates - synthesis of current knowledge and a way forward. Global Change Biology, 2011, 17, 3392-3404.	9.5	1,143
7	Decoupling of soil nutrient cycles as a function of aridity in global drylands. Nature, 2013, 502, 672-676.	27.8	733
8	Thermal adaptation of soil microbial respiration to elevated temperature. Ecology Letters, 2008, 11, 1316-1327.	6.4	690
9	Differential Growth Responses of Soil Bacterial Taxa to Carbon Substrates of Varying Chemical Recalcitrance. Frontiers in Microbiology, 2011, 2, 94.	3.5	504
10	Home-field advantage accelerates leaf litter decomposition in forests. Soil Biology and Biochemistry, 2009, 41, 606-610.	8.8	409
11	ENVIRONMENTAL CONTROLS ON DENITRIFYING COMMUNITIES AND DENITRIFICATION RATES: INSIGHTS FROM MOLECULAR METHODS. , 2006, 16, 2143-2152.		405
12	Effects of soil moisture on the temperature sensitivity of heterotrophic respiration vary seasonally in an oldâ€field climate change experiment. Global Change Biology, 2012, 18, 336-348.	9.5	367
13	Soil microbial community response to drying and rewetting stress: does historical precipitation regime matter?. Biogeochemistry, 2012, 109, 101-116.	3.5	360
14	Climate change alters ecological strategies of soil bacteria. Ecology Letters, 2014, 17, 155-164.	6.4	340
15	A trait-based framework for predicting when and where microbial adaptation to climate change will affect ecosystem functioning. Biogeochemistry, 2012, 109, 35-47.	3.5	297
16	Predicted responses of arctic and alpine ecosystems to altered seasonality under climate change. Global Change Biology, 2014, 20, 3256-3269.	9.5	297
17	Seasonal variation in enzyme activities and temperature sensitivities in Arctic tundra soils. Global Change Biology, 2009, 15, 1631-1639.	9.5	296
18	Emerging tools for measuring and modeling the in situ activity of soil extracellular enzymes. Soil Biology and Biochemistry, 2008, 40, 2098-2106.	8.8	278

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19	Relationships between protein-encoding gene abundance and corresponding process are commonly assumed yet rarely observed. ISME Journal, 2015, 9, 1693-1699.	9.8	276
20	Nitrogen fertilization decreases forest soil fungal and bacterial biomass in three long-term experiments. Forest Ecology and Management, 2006, 222, 459-468.	3.2	267
21	Bacterial and fungal community structure in Arctic tundra tussock and shrub soils. FEMS Microbiology Ecology, 2007, 59, 428-435.	2.7	221
22	Modeling the effects of temperature and moisture on soil enzyme activity: Linking laboratory assays to continuous field data. Soil Biology and Biochemistry, 2012, 55, 85-92.	8.8	219
23	Responses and feedbacks of coupled biogeochemical cycles to climate change: examples from terrestrial ecosystems. Frontiers in Ecology and the Environment, 2011, 9, 61-67.	4.0	214
24	Integrating legacy soil phosphorus into sustainable nutrient management strategies for future food, bioenergy and water security. Nutrient Cycling in Agroecosystems, 2016, 104, 393-412.	2.2	199
25	High-throughput Fluorometric Measurement of Potential Soil Extracellular Enzyme Activities. Journal of Visualized Experiments, 2013, , e50961.	0.3	190
26	Soil bacterial community composition altered by increased nutrient availability in Arctic tundra soils. Frontiers in Microbiology, 2014, 5, 516.	3.5	188
27	Rhizosphere stoichiometry: are CÂ:ÂNÂ:ÂP ratios of plants, soils, and enzymes conserved at the plant speciesâ€level?. New Phytologist, 2014, 201, 505-517.	7.3	187
28	Belowâ€ground connections underlying aboveâ€ground food production: a framework for optimising ecological connections in the rhizosphere. Journal of Ecology, 2017, 105, 913-920.	4.0	177
29	Fungal Taxa Target Different Carbon Sources in Forest Soil. Ecosystems, 2008, 11, 1157-1167.	3.4	174
30	Understanding how microbiomes influence the systems they inhabit. Nature Microbiology, 2018, 3, 977-982.	13.3	169
31	Microbial responses to multi-factor climate change: effects on soil enzymes. Frontiers in Microbiology, 2013, 4, 146.	3.5	164
32	Biochar and manure amendments impact soil nutrients and microbial enzymatic activities in a semi-arid irrigated maize cropping system. Agriculture, Ecosystems and Environment, 2016, 233, 404-414.	5.3	163
33	Microbes in thawing permafrost: the unknown variable in the climate change equation. ISME Journal, 2012, 6, 709-712.	9.8	153
34	Extracellular enzymes in terrestrial, freshwater, and marine environments: perspectives on system variability and common research needs. Biogeochemistry, 2014, 117, 5-21.	3.5	146
35	Linking microbial community structure and microbial processes: an empirical and conceptual overview. FEMS Microbiology Ecology, 2015, 91, fiv113.	2.7	143
36	Positive climate feedbacks of soil microbial communities in a semiâ€arid grassland. Ecology Letters, 2013, 16, 234-241.	6.4	141

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37	Plant nitrogen uptake drives rhizosphere bacterial community assembly during plant growth. Soil Biology and Biochemistry, 2015, 85, 170-182.	8.8	137
38	Soil microbial and nutrient responses to 7Âyears of seasonally altered precipitation in a Chihuahuan Desert grassland. Global Change Biology, 2014, 20, 1657-1673.	9.5	120
39	Terrestrial ecosystem processes of Victoria Land, Antarctica. Soil Biology and Biochemistry, 2006, 38, 3019-3034.	8.8	119
40	Tiny Microbes, Big Yields: enhancing food crop production with biological solutions. Microbial Biotechnology, 2017, 10, 999-1003.	4.2	119
41	COMMUNITY COMPOSITION AND PHOTOSYNTHESIS BY PHOTOAUTOTROPHS UNDER QUARTZ PEBBLES, SOUTHERN MOJAVE DESERT. Ecology, 2003, 84, 3222-3231.	3.2	107
42	Managing and manipulating the rhizosphere microbiome for plant health: A systems approach. Rhizosphere, 2017, 3, 230-232.	3.0	105
43	Litter chemistry changes more rapidly when decomposed at home but converges during decompositionâ€“transformation. Soil Biology and Biochemistry, 2013, 57, 311-319.	8.8	102
44	Soil aggregate size distribution mediates microbial climate change feedbacks. Soil Biology and Biochemistry, 2014, 68, 357-365.	8.8	102
45	Is bacterial moisture niche a good predictor of shifts in community composition under longâ€term drought?. Ecology, 2014, 95, 110-122.	3.2	97
46	Tree Species Traits Influence Soil Physical, Chemical, and Biological Properties in High Elevation Forests. PLoS ONE, 2009, 4, e5964.	2.5	96
47	EcoFABs: advancing microbiome science through standardized fabricated ecosystems. Nature Methods, 2019, 16, 567-571.	19.0	90
48	Managing Agroecosystems for Soil Microbial Carbon Use Efficiency: Ecological Unknowns, Potential Outcomes, and a Path Forward. Frontiers in Microbiology, 2019, 10, 1146.	3.5	89
49	Quantitative analyses of nitrogen cycling genes in soils. Pedobiologia, 2005, 49, 665-672.	1.2	87
50	A cross-seasonal comparison of active and total bacterial community composition in Arctic tundra soil using bromodeoxyuridine labeling. Soil Biology and Biochemistry, 2011, 43, 287-295.	8.8	83
51	Moisture availability influences the effect of ultravioletâ€B radiation on leaf litter decomposition. Global Change Biology, 2010, 16, 484-495.	9.5	81
52	Unifying soil organic matter formation and persistence frameworks: the MEMS model. Biogeosciences, 2019, 16, 1225-1248.	3.3	81
53	Catalytic power of enzymes decreases with temperature: New insights for understanding soil C cycling and microbial ecology under warming. Global Change Biology, 2018, 24, 4238-4250.	9.5	75
54	Controls on the Temperature Sensitivity of Soil Enzymes: A Key Driver of In Situ Enzyme Activity Rates. Soil Biology, 2010, , 245-258.	0.8	63

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55	Increased plant productivity and decreased microbial respiratory C loss by plant growth-promoting rhizobacteria under elevated CO2. Scientific Reports, 2015, 5, 9212.	3.3	63
56	River channel connectivity shifts metabolite composition and dissolved organic matter chemistry. Nature Communications, 2019, 10, 459.	12.8	62
57	Soil carbon cycling proxies: Understanding their critical role in predicting climate change feedbacks. Global Change Biology, 2018, 24, 895-905.	9.5	61
58	Earlier snowmelt and warming lead to earlier but not necessarily more plant growth. AoB PLANTS, 2016, 8, .	2.3	60
59	Plant traits, stoichiometry and microbes as drivers of decomposition in the rhizosphere in a temperate grassland. Journal of Ecology, 2017, 105, 1750-1765.	4.0	60
60	Elevated carbon dioxide accelerates the spatial turnover of soil microbial communities. Global Change Biology, 2016, 22, 957-964.	9.5	57
61	Watershed Urbanization Alters the Composition and Function of Stream Bacterial Communities. PLoS ONE, 2011, 6, e22972.	2.5	57
62	Microbial growth in Arctic tundra soil at âˆ’2Â°C. Environmental Microbiology Reports, 2009, 1, 162-166.	2.4	56
63	Soil bacterial community responses to altered precipitation and temperature regimes in an old field grassland are mediated by plants. FEMS Microbiology Ecology, 2018, 94, .	2.7	54
64	Decomposition of aspen leaf litter results in unique metabolomes when decomposed under different tree species. Soil Biology and Biochemistry, 2010, 42, 484-490.	8.8	53
65	Soil respiration is not limited by reductions in microbial biomass during long-term soil incubations. Soil Biology and Biochemistry, 2015, 81, 304-310.	8.8	53
66	A litter-slurry technique elucidates the key role of enzyme production and microbial dynamics in temperature sensitivity of organic matter decomposition. Soil Biology and Biochemistry, 2012, 47, 18-26.	8.8	50
67	Phosphorus mobilizing consortium Mammoth P^{â„¢}enhances plant growth. PeerJ, 2016, 4, e2121.	2.0	46
68	Carbon-Degrading Enzyme Activities Stimulated by Increased Nutrient Availability in Arctic Tundra Soils. PLoS ONE, 2013, 8, e77212.	2.5	44
69	Temperature Sensitivity as a Microbial Trait Using Parameters from Macromolecular Rate Theory. Frontiers in Microbiology, 2016, 7, 1821.	3.5	43
70	Aridity Modulates N Availability in Arid and Semiarid Mediterranean Grasslands. PLoS ONE, 2013, 8, e59807.	2.5	42
71	Temperature sensitivity of soil microbial communities: An application of macromolecular rate theory to microbial respiration. Journal of Geophysical Research G: Biogeosciences, 2016, 121, 1420-1433.	3.0	41
72	Tracking the fate of fresh carbon in the Arctic tundra: Will shrub expansion alter responses of soil organic matter to warming?. Soil Biology and Biochemistry, 2018, 120, 134-144.	8.8	40

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73	N FERTILIZATION EFFECTS ON DENITRIFICATION AND N CYCLING IN AN AGGRADING FOREST. , 2006, 16, 2168-2176.		32
74	Permafrost microbial community traits and functional diversity indicate low activity at in situ thaw temperatures. Soil Biology and Biochemistry, 2015, 87, 78-89.	8.8	32
75	Effects of Invasion of Pinus virginiana on Soil Properties in Serpentine Barrens in Southeastern Pennsylvania. Journal of the Torrey Botanical Society, 1997, 124, 297.	0.3	30
76	Chemical Indicators of Cryoturbation and Microbial Processing throughout an Alaskan Permafrost Soil Depth Profile. Soil Science Society of America Journal, 2015, 79, 783-793.	2.2	30
77	Opposing effects of different soil organic matter fractions on crop yields. Ecological Applications, 2016, 26, 2072-2085.	3.8	30
78	Vascular plants mediate the effects of aridity and soil properties on ammonia-oxidizing bacteria and archaea. FEMS Microbiology Ecology, 2013, 85, 273-282.	2.7	28
79	Moisture and temperature controls on nitrification differ among ammonia oxidizer communities from three alpine soil habitats. Frontiers of Earth Science, 2016, 10, 1-12.	2.1	26
80	<scp>I</scp>n<scp>â€Nâ€O</scp>ut: A hierarchical framework to understand and predict soil carbon storage and nitrogen recycling. Global Change Biology, 2021, 27, 4465-4468.	9.5	26
81	Ecology of Extracellular Enzyme Activities and Organic Matter Degradation in Soil: A Complex Community-Driven Process. Soil Science Society of America Book Series, 0, , 35-55.	0.3	26
82	Redox and temperature-sensitive changes in microbial communities and soil chemistry dictate greenhouse gas loss from thawed permafrost. Biogeochemistry, 2017, 134, 183-200.	3.5	22
83	Microbial activity is not always limited by nitrogen in Arctic tundra soils. Soil Biology and Biochemistry, 2015, 90, 52-61.	8.8	21
84	A novel soil amendment for enhancing soil moisture retention and soil carbon in drought-prone soils. Geoderma, 2019, 337, 256-265.	5.1	20
85	Microbial functional genes commonly respond to elevated carbon dioxide. Environment International, 2020, 144, 106068.	10.0	20
86	Rigorous, empirical, and quantitative: a proposed pipeline for soil health assessments. Soil Biology and Biochemistry, 2022, 170, 108710.	8.8	20
87	Decreased mass specific respiration under experimental warming is robust to the microbial biomass method employed. Ecology Letters, 2009, 12, E15.	6.4	19
88	Distribution of soil organic matter fractions are altered with soil priming. Soil Biology and Biochemistry, 2022, 164, 108494.	8.8	16
89	Divergent belowground carbon allocation patterns of winter wheat shape rhizosphere microbial communities and nitrogen cycling activities. Soil Biology and Biochemistry, 2022, 165, 108518.	8.8	15
90	Addressing the soil carbon dilemma: Legumes in intensified rotations regenerate soil carbon while maintaining yields in semi-arid dryland wheat farms. Agriculture, Ecosystems and Environment, 2022, 330, 107906.	5.3	15

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91	Dissolved Organic Matter Chemistry and Transport Along an Arctic Tundra Hillslope. Global Biogeochemical Cycles, 2019, 33, 47-62.	4.9	12
92	New insights into enzymes in the environment. Biogeochemistry, 2014, 117, 1-4.	3.5	11
93	Genomics in a changing arctic: critical questions await the molecular ecologist. Molecular Ecology, 2015, 24, 2301-2309.	3.9	10
94	Microbial Modulators and Mechanisms of Soil Carbon Storage. , 2018, , 73-115.		10
95	Experimentally warmer and drier conditions in an Arctic plant community reveal microclimatic controls on senescence. Ecosphere, 2019, 10, e02677.	2.2	10
96	Long-term compost amendment modulates wheat genotype differences in belowground carbon allocation, microbial rhizosphere recruitment and nitrogen acquisition. Soil Biology and Biochemistry, 2022, 172, 108768.	8.8	10
97	Progressing towards more quantitative analytical pyrolysis of soil organic matter using molecular beam mass spectroscopy of whole soils and added standards. Geoderma, 2016, 283, 88-100.	5.1	8
98	Withinâ€species tradeâ€offs in plantâ€stimulated soil enzyme activity and growth, flowering, and seed size. Ecology and Evolution, 2018, 8, 11717-11724.	1.9	5
99	From Factory to Field: Effects of a Novel Soil Amendment Derived From Cheese Production on Wheat and Corn Production. Frontiers in Sustainable Food Systems, 2020, 3, .	3.9	4
100	Precision biochar and inoculum applications shift bacterial community structure and increase specific nutrient availability and maize yield. Applied Soil Ecology, 2020, 151, 103541.	4.3	4
101	Bridging the gap between modelers and experimentalists. Eos, 2012, 93, 312-312.	0.1	3
102	Soil Respiration and Student Inquiry: A Perfect Match. Science Activities, 2011, 48, 119-128.	0.6	1
103	Microbial Community-Level Responses to Warming and Altered Precipitation Patterns Determine Terrestrial Carbon-Climate Feedbacks. , 2014, , 349-354.		1
104	Ecosystem metabolomics of dissolved organic matter from arctic soil pore water across seasonal transitions. , 2022, , 91-106.		0