James C Stegen

List of Publications by Year
in descending order

115 papers	14,596 citations	61984 43 h-index	22832 112 g-index
153 all docs	153 docs citations	153 times ranked	16271 citing authors

#	Article	IF	Citations
1	Navigating the multiple meanings of Î² diversity: a roadmap for the practicing ecologist. Ecology Letters, 2011, 14, 19-28.	6.4	1,899
2	Quantifying community assembly processes and identifying features that impose them. ISME Journal, 2013, 7, 2069-2079.	9.8	1,354
3	Stochastic and deterministic assembly processes in subsurface microbial communities. ISME Journal, 2012, 6, 1653-1664.	9.8	1,203
4	TRY plant trait database â€“ enhanced coverage and open access. Global Change Biology, 2020, 26, 119-188.	9.5	1,038
5	Disentangling mechanisms that mediate the balance between stochastic and deterministic processes in microbial succession. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E1326-32.	7.1	972
6	Disentangling the Drivers of Î² Diversity Along Latitudinal and Elevational Gradients. Science, 2011, 333, 1755-1758.	12.6	617
7	Soil pH mediates the balance between stochastic and deterministic assembly of bacteria. ISME Journal, 2018, 12, 1072-1083.	9.8	591
8	Estimating and mapping ecological processes influencing microbial community assembly. Frontiers in Microbiology, 2015, 6, 370.	3.5	578
9	Phylogenetic beta diversity in bacterial assemblages across ecosystems: deterministic versus stochastic processes. ISME Journal, 2013, 7, 1310-1321.	9.8	515
10	The Gut Microbiota of Rural Papua New Guineans: Composition, Diversity Patterns, and Ecological Processes. Cell Reports, 2015, 11, 527-538.	6.4	475
11	A genomic catalog of Earthâ€™s microbiomes. Nature Biotechnology, 2021, 39, 499-509.	17.5	457
12	Groundwaterâ€“surface water mixing shifts ecological assembly processes and stimulates organic carbon turnover. Nature Communications, 2016, 7, 11237.	12.8	290
13	The reduced genomes of Parcubacteria (OD1) contain signatures of a symbiotic lifestyle. Frontiers in Microbiology, 2015, 6, 713.	3.5	280
14	The biogeography and filtering of woody plant functional diversity in North and South America. Global Ecology and Biogeography, 2012, 21, 798-808.	5.8	235
15	Variation in above-ground forest biomass across broad climatic gradients. Global Ecology and Biogeography, 2011, 20, 744-754.	5.8	195
16	Temporal turnover in the composition of tropical tree communities: functional determinism and phylogenetic stochasticity. Ecology, 2012, 93, 490-499.	3.2	168
17	Putting plant resistance traits on the map: a test of the idea that plants are better defended at lower latitudes. New Phytologist, 2011, 191, 777-788.	7.3	155
18	Testing the metabolic theory of ecology. Ecology Letters, 2012, 15, 1465-1474.	6.4	155

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19	Two key features influencing community assembly processes at regional scale: Initial state and degree of change in environmental conditions. Molecular Ecology, 2018, 27, 5238-5251.	3.9	147
20	Deterministic influences exceed dispersal effects on hydrologicallyâ€connected microbiomes. Environmental Microbiology, 2017, 19, 1552-1567.	3.8	143
21	Correlations between physical and chemical defences in plants: tradeoffs, syndromes, or just many different ways to skin a herbivorous cat?. New Phytologist, 2013, 198, 252-263.	7.3	124
22	Stochastic and deterministic drivers of spatial and temporal turnover in breeding bird communities. Global Ecology and Biogeography, 2013, 22, 202-212.	5.8	121
23	Linking microbial community structure to Î²-glucosidic function in soil aggregates. ISME Journal, 2013, 7, 2044-2053.	9.8	110
24	Influences of organic carbon speciation on hyporheic corridor biogeochemistry and microbial ecology. Nature Communications, 2018, 9, 585.	12.8	110
25	When should species richness be energy limited, and how would we know?. Ecology Letters, 2014, 17, 401-413.	6.4	107
26	Dispersal-Based Microbial Community Assembly Decreases Biogeochemical Function. Processes, 2017, 5, 65.	2.8	93
27	An empirical assessment of tree branching networks and implications for plant allometric scaling models. Ecology Letters, 2013, 16, 1069-1078.	6.4	89
28	Coupling Spatiotemporal Community Assembly Processes to Changes in Microbial Metabolism. Frontiers in Microbiology, 2016, 7, 1949.	3.5	87
29	Forfeiting the priority effect: turnover defines biofilm community succession. ISME Journal, 2019, 13, 1865-1877.	9.8	83
30	Long-term nitrogen addition affects the phylogenetic turnover of soil microbial community responding to moisture pulse. Scientific Reports, 2017, 7, 17492.	3.3	79
31	Distinct assembly mechanisms underlie similar biogeographical patterns of rare and abundant bacteria in Tibetan Plateau grassland soils. Environmental Microbiology, 2020, 22, 2261-2272.	3.8	77
32	Nearly a decadeâ€long repeatable seasonal diversity patterns of bacterioplankton communities in the eutrophic Lake Donghu (Wuhan, China). Molecular Ecology, 2017, 26, 3839-3850.	3.9	76
33	The epsomitic phototrophic microbial mat of Hot Lake, Washington: community structural responses to seasonal cycling. Frontiers in Microbiology, 2013, 4, 323.	3.5	75
34	Autogenic succession and deterministic recovery following disturbance in soil bacterial communities. Scientific Reports, 2017, 7, 45691.	3.3	71
35	Inferring Ecological Processes from Taxonomic, Phylogenetic and Functional Trait Î²-Diversity. PLoS ONE, 2011, 6, e20906.	2.5	69
36	Advancing the metabolic theory of biodiversity. Ecology Letters, 2009, 12, 1001-1015.	6.4	68

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37	Drought Conditions Maximize the Impact of Highâ€Frequency Flow Variations on Thermal Regimes and Biogeochemical Function in the Hyporheic Zone. Water Resources Research, 2018, 54, 7361-7382.	4.2	63
38	Dispersal limitation and thermodynamic constraints govern spatial structure of permafrost microbial communities. FEMS Microbiology Ecology, 2018, 94, .	2.7	62
39	Multi 'omics comparison reveals metabolome biochemistry, not microbiome composition or gene expression, corresponds to elevated biogeochemical function in the hyporheic zone. Science of the Total Environment, 2018, 642, 742-753.	8.0	60
40	Spatial and successional dynamics of microbial biofilm communities in a grassland stream ecosystem. Molecular Ecology, 2016, 25, 4674-4688.	3.9	59
41	Carbon Inputs From Riparian Vegetation Limit Oxidation of Physically Bound Organic Carbon Via Biochemical and Thermodynamic Processes. Journal of Geophysical Research G: Biogeosciences, 2017, 122, 3188-3205.	3.0	58
42	Dispersal, environmental niches and oceanic-scale turnover in deep-sea bivalves. Proceedings of the Royal Society B: Biological Sciences, 2012, 279, 1993-2002.	2.6	54
43	Integrating elements and energy through the metabolic dependencies of gross growth efficiency and the threshold elemental ratio. Oikos, 2010, 119, 752-765.	2.7	51
44	Using metacommunity ecology to understand environmental metabolomes. Nature Communications, 2020, 11, 6369.	12.8	51
45	Seasonal hyporheic dynamics control coupled microbiology and geochemistry in Colorado River sediments. Journal of Geophysical Research G: Biogeosciences, 2016, 121, 2976-2987.	3.0	49
46	Straw chemistry links the assembly of bacterial communities to decomposition in paddy soils. Soil Biology and Biochemistry, 2020, 148, 107866.	8.8	49
47	Aboveâ€ground forest biomass is not consistently related to wood density in tropical forests. Global Ecology and Biogeography, 2009, 18, 617-625.	5.8	46
48	Relative Roles of Deterministic and Stochastic Processes in Driving the Vertical Distribution of Bacterial Communities in a Permafrost Core from the Qinghai-Tibet Plateau, China. PLoS ONE, 2015, 10, e0145747.	2.5	44
49	A unified conceptual framework for prediction and control of microbiomes. Current Opinion in Microbiology, 2018, 44, 20-27.	5.1	42
50	Evolving ecological networks and the emergence of biodiversity patterns across temperature gradients. Proceedings of the Royal Society B: Biological Sciences, 2012, 279, 1051-1060.	2.6	40
51	Geochemical and Microbial Community Attributes in Relation to Hyporheic Zone Geological Facies. Scientific Reports, 2017, 7, 12006.	3.3	40
52	Regulation-Structured Dynamic Metabolic Model Provides a Potential Mechanism for Delayed Enzyme Response in Denitrification Process. Frontiers in Microbiology, 2017, 8, 1866.	3.5	40
53	The control of color change in the Pacific tree frog, Hyla regilla. Canadian Journal of Zoology, 2004, 82, 889-896.	1.0	39
54	Carbon Limitation Leads to Thermodynamic Regulation of Aerobic Metabolism. Environmental Science and Technology Letters, 2020, 7, 517-524.	8.7	32

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55	Temperature drives local contributions to beta diversity in mountain streams: Stochastic and deterministic processes. Global Ecology and Biogeography, 2020, 29, 420-432.	5.8	30
56	On the processes generating latitudinal richness gradients: identifying diagnostic patterns and predictions. Frontiers in Genetics, 2014, 5, 420.	2.3	27
57	Representing Organic Matter Thermodynamics in Biogeochemical Reactions via Substrate-Explicit Modeling. Frontiers in Microbiology, 2020, 11, 531756.	3.5	27
58	Using Community Science to Reveal the Global Chemogeography of River Metabolomes. Metabolites, 2020, 10, 518.	2.9	27
59	Microbial and Environmental Processes Shape the Link between Organic Matter Functional Traits and Composition. Environmental Science & Technology, 2022, 56, 10504-10516.	10.0	27
60	Coupling among Microbial Communities, Biogeochemistry and Mineralogy across Biogeochemical Facies. Scientific Reports, 2016, 6, 30553.	3.3	26
61	Biogeochemical cycling at the aquaticâ€“terrestrial interface is linked to parafluvial hyporheic zone inundation history. Biogeosciences, 2017, 14, 4229-4241.	3.3	25
62	Assembly of the Populus Microbiome Is Temporally Dynamic and Determined by Selective and Stochastic Factors. MSphere, 2021, 6, e0131620.	2.9	25
63	Spatial and temporal variation in river corridor exchange across a 5th-order mountain stream network. Hydrology and Earth System Sciences, 2019, 23, 5199-5225.	4.9	23
64	WHONDRS: a Community Resource for Studying Dynamic River Corridors. MSystems, 2018, 3, .	3.8	22
65	Integrating field observations and process-based modeling to predict watershed water quality under environmental perturbations. Journal of Hydrology, 2021, 602, 125762.	5.4	22
66	Ecological theory applied to environmental metabolomes reveals compositional divergence despite conserved molecular properties. Science of the Total Environment, 2021, 788, 147409.	8.0	21
67	Colonization Habitat Controls Biomass, Composition, and Metabolic Activity of Attached Microbial Communities in the Columbia River Hyporheic Corridor. Applied and Environmental Microbiology, 2017, 83, .	3.1	20
68	Methane and nitrous oxide porewater concentrations and surface fluxes of a regulated river. Science of the Total Environment, 2020, 715, 136920.	8.0	20
69	Special Collection on Open Collaboration Across Geosciences. Eos, 2021, 102, .	0.1	20
70	Functional trait assembly through ecological and evolutionary time. Theoretical Ecology, 2009, 2, 239-250.	1.0	19
71	Interannual variability of growth and reproduction in Bursera simaruba: the role of allometry and resource variability. Ecology, 2012, 93, 180-190.	3.2	19
72	Spatial gradients in the characteristics of soil-carbon fractions are associated with abiotic features but not microbial communities. Biogeosciences, 2019, 16, 3911-3928.	3.3	19

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73	Subsurface biogeochemistry is a missing link between ecology and hydrology in dam-impacted river corridors. Science of the Total Environment, 2019, 657, 435-445.	8.0	19
74	Coupled Biotic-Abiotic Processes Control Biogeochemical Cycling of Dissolved Organic Matter in the Columbia River Hyporheic Zone. Frontiers in Water, 2021, 2, .	2.3	18
75	Riverbed Hydrologic Exchange Dynamics in a Large Regulated River Reach. Water Resources Research, 2018, 54, 2715-2730.	4.2	17
76	Assessing Microbial Community Patterns During Incipient Soil Formation From Basalt. Journal of Geophysical Research G: Biogeosciences, 2019, 124, 941-958.	3.0	16
77	Ecological Assembly Processes Are Coordinated between Bacterial and Viral Communities in Fractured Shale Ecosystems. MSystems, 2020, 5, .	3.8	15
78	Co-located contemporaneous mapping of morphological, hydrological, chemical, and biological conditions in a 5th-order mountain stream network, Oregon, USA. Earth System Science Data, 2019, 11, 1567-1581.	9.9	14
79	Integrated, Coordinated, Open, and Networked (ICON) Science to Advance the Geosciences: Introduction and Synthesis of a Special Collection of Commentary Articles. Earth and Space Science, 2022, 9, .	2.6	14
80	On the relationship between mass and diameter distributions in tree communities. Ecology Letters, 2008, 11, 1287-1293.	6.4	13
81	Aligning the Measurement of Microbial Diversity with Macroecological Theory. Frontiers in Microbiology, 2016, 7, 1487.	3.5	13
82	Distinct temporal diversity profiles for nitrogen cycling genes in a hyporheic microbiome. PLoS ONE, 2020, 15, e0228165.	2.5	12
83	Movement with meaning: integrating information into metaâ€ecology. Oikos, 2022, 2022, .	2.7	12
84	Sample Identifiers and Metadata to Support Data Management and Reuse in Multidisciplinary Ecosystem Sciences. Data Science Journal, 2021, 20, 11.	1.3	11
85	Eco-Evolutionary Community Dynamics: Covariation between Diversity and Invasibility across Temperature Gradients. American Naturalist, 2012, 180, E110-E126.	2.1	9
86	Response to Comments on â€œDisentangling the Drivers of Î² Diversity Along Latitudinal and Elevational Gradientsâ€• Science, 2012, 335, 1573-1573.	12.6	8
87	A Flux Detection Probe to Quantify Dynamic Groundwaterâ€Surface Water Exchange in the Hyporheic Zone. Ground Water, 2020, 58, 892-900.	1.3	8
88	Disturbance triggers non-linear microbeâ€“environment feedbacks. Biogeosciences, 2021, 18, 4773-4789.	3.3	8
89	Active layer depth and soil properties impact specific leaf area variation and ecosystem productivity in a boreal forest. PLoS ONE, 2020, 15, e0232506.	2.5	8
90	Soil respiration across aÂpermafrost transition zone: spatial structure and environmental correlates. Biogeosciences, 2017, 14, 4341-4354.	3.3	7

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91	Tree growth, transpiration, and water-use efficiency between shoreline and upland red maple (Acer) Tj ETQq1 1 0.784314 rgBT /Overlock	4.8	7
92	Small streams dominate US tidal reaches and will be disproportionately impacted by sea-level rise. Science of the Total Environment, 2021, 753, 141944.	8.0	7
93	Antecedent conditions determine the biogeochemical response of coastal soils to seawater exposure. Soil Biology and Biochemistry, 2021, 153, 108104.	8.8	7
94	Advancing river corridor science beyond disciplinary boundaries with an inductive approach to catalyse hypothesis generation. Hydrological Processes, 2022, 36, .	2.6	7
95	Disinfection byproducts formed during drinking water treatment reveal an export control point for dissolved organic matter in a subalpine headwater stream. Water Research X, 2022, 15, 100144.	6.1	7
96	Hot Spots and Hot Moments in the Critical Zone: Identification of and Incorporation into Reactive Transport Models. , 2022, , 9-47.		7
97	Implications of sample treatment on characterization of riverine dissolved organic matter. Environmental Sciences: Processes and Impacts, 2022, 24, 773-782.	3.5	6
98	Distinct and Temporally Stable Assembly Mechanisms Shape Bacterial and Fungal Communities in Vineyard Soils. Microbial Ecology, 2023, 86, 337-349.	2.8	6
99	At the Nexus of History, Ecology, and Hydrobiogeochemistry: Improved Predictions across Scales through Integration. MSystems, 2018, 3, .	3.8	5
100	Localized basal area affects soil respiration temperature sensitivity in a coastal deciduous forest. Biogeosciences, 2020, 17, 771-780.	3.3	5
101	Inferring the Contribution of Microbial Taxa and Organic Matter Molecular Formulas to Ecological Assembly. Frontiers in Microbiology, 2022, 13, 803420.	3.5	5
102	Contrasting Community Assembly Forces Drive Microbial Structural and Potential Functional Responses to Precipitation in an Incipient Soil System. Frontiers in Microbiology, 2021, 12, 754698.	3.5	4
103	Organic matter transformations are disconnected between surface water and the hyporheic zone. Biogeosciences, 2022, 19, 3099-3110.	3.3	4
104	Evaluating a Laboratory Flume Microbiome as a Window Into Natural Riverbed Biogeochemistry. Frontiers in Water, 2021, 3, .	2.3	3
105	Amount and reactivity of dissolved organic matter export are affected by land cover change from oldâ€growth to secondâ€growth forests in headwater ecosystems. Hydrological Processes, 2021, 35, e14343.	2.6	3
106	It Takes a Village: Using a Crowdsourced Approach to Investigate Organic Matter Composition in Global Rivers Through the Lens of Ecological Theory. Frontiers in Water, 2022, 4, .	2.3	3
107	Continentalâ€scale niche differentiation of dominant topsoil archaea in drylands. Environmental Microbiology, 2022, 24, 5483-5497.	3.8	3
108	Historical Contingency in Microbial Resilience to Hydrologic Perturbations. Frontiers in Water, 2021, 3, .	2.3	2

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109	ORT: a workflow linking genome-scale metabolic models with reactive transport codes. Bioinformatics, 2022, 38, 778-784.	4.1	2
110	Trophic ecology of an aquatic mite (Piona carnea) preying on Daphnia pulex: effects of predator density, nutrient supply and a second predator (Chaoborus americanus). Hydrobiologia, 2011, 668, 171-182.	2.0	1
111	A novel construct for scaling groundwaterâ€“river interactions based on machine-guided hydromorphic classification. Environmental Research Letters, 2021, 16, 104016.	5.2	1
112	The ecological assembly of bacterial communities in Antarctic wetlands varies across levels of phylogenetic resolution. Environmental Microbiology, 2022, , .	3.8	1
113	Riverbed Temperature and 4D ERT Monitoring Reveals Heterogenous Horizontal and Vertical Groundwater-Surface Water Exchange Flows Under Dynamic Stage Conditions. Frontiers in Earth Science, 2022, 10, .	1.8	1
114	Integrating elements and energy through the metabolic dependencies of gross growth efficiency and the threshold elemental ratio. Oikos, 2010, 119, 752.	2.7	0
115	Dissolved oxygen sensor in an automated hyporheic sampling system reveals biogeochemical dynamics. , 2022, 1, e0000014.		0