Matthew A Bowker

List of Publications by Year
in descending order

132 papers	12,713 citations	31976 53 h-index	26613 107 g-index
133 all docs	133 docs citations	133 times ranked	11382 citing authors

#	Article	IF	Citations
1	Plant Species Richness and Ecosystem Multifunctionality in Global Drylands. Science, 2012, 335, 214-218.	12.6	1,043
2	Impacts of shrub encroachment on ecosystem structure and functioning: towards a global synthesis. Ecology Letters, 2011, 14, 709-722.	6.4	864
3	Decoupling of soil nutrient cycles as a function of aridity in global drylands. Nature, 2013, 502, 672-676.	27.8	733
4	Increasing aridity reduces soil microbial diversity and abundance in global drylands. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 15684-15689.	7.1	728
5	Resource limitation is a driver of local adaptation in mycorrhizal symbioses. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 2093-2098.	7.1	563
6	Land use alters the resistance and resilience of soil food webs to drought. Nature Climate Change, 2012, 2, 276-280.	18.8	480
7	Mycorrhizal phenotypes and the <scp>L</scp>aw of the <scp>M</scp>inimum. New Phytologist, 2015, 205, 1473-1484.	7.3	387
8	Structure and Functioning of Dryland Ecosystems in a Changing World. Annual Review of Ecology, Evolution, and Systematics, 2016, 47, 215-237.	8.3	330
9	Biological Soil Crust Rehabilitation in Theory and Practice: An Underexploited Opportunity. Restoration Ecology, 2007, 15, 13-23.	2.9	310
10	From patterns to causal understanding: Structural equation modeling (SEM) in soil ecology. Pedobiologia, 2015, 58, 65-72.	1.2	287
11	Shrub encroachment can reverse desertification in semiâ€arid Mediterranean grasslands. Ecology Letters, 2009, 12, 930-941.	6.4	285
12	Mortality Gradients within and among Dominant Plant Populations as Barometers of Ecosystem Change During Extreme Drought. Conservation Biology, 2006, 20, 1477-1486.	4.7	232
13	Ecology and functional roles of biological soil crusts in semi-arid ecosystems of Spain. Journal of Arid Environments, 2011, 75, 1282-1291.	2.4	217
14	Species richness effects on ecosystem multifunctionality depend on evenness, composition and spatial pattern. Journal of Ecology, 2012, 100, 317-330.	4.0	178
15	Biological crusts as a model system for examining the biodiversityâ€"ecosystem function relationship in soils. Soil Biology and Biochemistry, 2010, 42, 405-417.	8.8	177
16	Temporal Variation in Community Composition, Pigmentation, and Fv/Fm of Desert Cyanobacterial Soil Crusts. Microbial Ecology, 2002, 43, 13-25.	2.8	169
17	Biological soil crusts decrease erodibility by modifying inherent soil properties on the Loess Plateau, China. Soil Biology and Biochemistry, 2017, 105, 49-58.	8.8	156
18	Changes in belowground biodiversity during ecosystem development. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 6891-6896.	7.1	151

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19	Intransitive competition is widespread in plant communities and maintains their species richness. Ecology Letters, 2015, 18, 790-798.	6.4	149
20	Untangling the biological contributions to soil stability in semiarid shrublands. Ecological Applications, 2009, 19, 110-122.	3.8	148
21	Global ecological predictors of the soil priming effect. Nature Communications, 2019, 10, 3481.	12.8	148
22	Correlates of biological soil crust abundance across a continuum of spatial scales: support for a hierarchical conceptual model. Journal of Applied Ecology, 2006, 43, 152-163.	4.0	140
23	Microhabitat amelioration and reduced competition among understorey plants as drivers of facilitation across environmental gradients: Towards a unifying framework. Perspectives in Plant Ecology, Evolution and Systematics, 2011, 13, 247-258.	2.7	136
24	Revisiting classic water erosion models in drylands: The strong impact of biological soil crusts. Soil Biology and Biochemistry, 2008, 40, 2309-2316.	8.8	134
25	EVIDENCE FOR MICRONUTRIENT LIMITATION OF BIOLOGICAL SOIL CRUSTS: IMPORTANCE TO ARID-LANDS RESTORATION. , 2005, 15, 1941-1951.		129
26	The pervasive and multifaceted influence of biocrusts on water in the world's drylands. Global Change Biology, 2020, 26, 6003-6014.	9.5	129
27	Soil fungal abundance and plant functional traits drive fertile island formation in global drylands. Journal of Ecology, 2018, 106, 242-253.	4.0	123
28	Interactive Effects of Three Ecosystem Engineers on Infiltration in a Semi-Arid Mediterranean Grassland. Ecosystems, 2010, 13, 499-510.	3.4	122
29	Do biotic interactions modulate ecosystem functioning along stress gradients? Insights from semi-arid plant and biological soil crust communities. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 2057-2070.	4.0	122
30	Sex expression, skewed sex ratios, and microhabitat distribution in the dioecious desert moss Syntrichia caninervis (Pottiaceae). American Journal of Botany, 2000, 87, 517-526.	1.7	118
31	Warming reduces the growth and diversity of biological soil crusts in a semi-arid environment: implications for ecosystem structure and functioning. Philosophical Transactions of the Royal Society B: Biological Sciences, 2012, 367, 3087-3099.	4.0	117
32	Functional profiles reveal unique ecological roles of various biological soil crust organisms. Functional Ecology, 2011, 25, 787-795.	3.6	114
33	Biocrusts: the living skin of the earth. Plant and Soil, 2018, 429, 1-7.	3.7	111
34	Competition increases with abiotic stress and regulates the diversity of biological soil crusts. Journal of Ecology, 2010, 98, 551-560.	4.0	102
35	Biocrustâ€forming mosses mitigate the negative impacts of increasing aridity on ecosystem multifunctionality in drylands. New Phytologist, 2016, 209, 1540-1552.	7.3	101
36	Biological soil crusts (biocrusts) as a model system in community, landscape and ecosystem ecology. Biodiversity and Conservation, 2014, 23, 1619-1637.	2.6	98

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37	Rapidly restoring biological soil crusts and ecosystem functions in a severely disturbed desert ecosystem. Ecological Applications, 2016, 26, 1260-1272.	3.8	98
38	Relationships between biological soil crusts, bacterial diversity and abundance, and ecosystem functioning: Insights from a semi-arid Mediterranean environment. Journal of Vegetation Science, 2011, 22, 165-174.	2.2	95
39	Production of greenhouseâ€grown biocrust mosses and associated cyanobacteria to rehabilitate dryland soil function. Restoration Ecology, 2016, 24, 324-335.	2.9	95
40	Plant diversity and ecosystem multifunctionality peak at intermediate levels of woody cover in global drylands. Global Ecology and Biogeography, 2014, 23, 1408-1416.	5.8	93
41	Towards a predictive framework for biocrust mediation of plant performance: A metaâ€analysis. Journal of Ecology, 2019, 107, 2789-2807.	4.0	92
42	Diversity and Patch-Size Distributions of Biological Soil Crusts Regulate Dryland Ecosystem Multifunctionality. Ecosystems, 2013, 16, 923-933.	3.4	90
43	What is a biocrust? A refined, contemporary definition for a broadening research community. Biological Reviews, 2022, 97, 1768-1785.	10.4	87
44	Post-fire land treatments and wind erosion â€" Lessons from the Milford Flat Fire, UT, USA. Aeolian Research, 2012, 7, 29-44.	2.7	82
45	Grazing dampens the positive effects of shrub encroachment on ecosystem functions in a semiâ€arid woodland. Journal of Applied Ecology, 2013, 50, 1028-1038.	4.0	81
46	Controls on Distribution Patterns of Biological Soil Crusts at Micro- to Global Scales. Ecological Studies, 2016, , 173-197.	1.2	77
47	Climate and soil attributes determine plant species turnover in global drylands. Journal of Biogeography, 2014, 41, 2307-2319.	3.0	76
48	Functional traits determine plant co-occurrence more than environment or evolutionary relatedness in global drylands. Perspectives in Plant Ecology, Evolution and Systematics, 2014, 16, 164-173.	2.7	73
49	The soil priming effect: Consistent across ecosystems, elusive mechanisms. Soil Biology and Biochemistry, 2020, 140, 107617.	8.8	67
50	Hydrology in a patterned landscape is co-engineered by soil-disturbing animals and biological crusts. Soil Biology and Biochemistry, 2013, 61, 14-22.	8.8	64
51	Priorities for research in soil ecology. Pedobiologia, 2017, 63, 1-7.	1.2	64
52	Alternative states of a semiarid grassland ecosystem: implications for ecosystem services. Ecosphere, 2011, 2, art55.	2.2	62
53	Wildfire-resistant biological soil crusts and fire-induced loss of soil stability in Palouse prairies, USA. Applied Soil Ecology, 2004, 26, 41-52.	4.3	60
54	Linking aboveâ€•and belowground responses to global change at community and ecosystem scales. Global Change Biology, 2009, 15, 914-929.	9.5	59

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55	Spatial Modeling of Biological Soil Crusts to Support Rangeland Assessment and Monitoring. Rangeland Ecology and Management, 2006, 59, 519-529.	2.3	55
56	To dry perchance to live: Insights from the genome of the desiccationâ€tolerant biocrust moss <i>Syntrichia caninervis</i>. Plant Journal, 2021, 105, 1339-1356.	5.7	55
57	Prioritizing Conservation Effort through the Use of Biological Soil Crusts as Ecosystem Function Indicators in an Arid Region. Conservation Biology, 2008, 22, 1533-1543.	4.7	53
58	Maximizing establishment and survivorship of field-collected and greenhouse-cultivated biocrusts in a semi-cold desert. Plant and Soil, 2018, 429, 213-225.	3.7	53
59	A simple classification of soil types as habitats of biological soil crusts on the Colorado Plateau, USA. Journal of Vegetation Science, 2008, 19, 831-840.	2.2	51
60	Nitrogen deposition alters nitrogen cycling and reduces soil carbon content in low-productivity semiarid Mediterranean ecosystems. Environmental Pollution, 2013, 179, 185-193.	7.5	50
61	TREATMENT EFFECTS ON PERFORMANCE OF N-FIXING LICHENS IN DISTURBED SOIL CRUSTS OF THE COLORADO PLATEAU. , 2002, 12, 1391-1405.		49
62	Above- and belowground responses to tree thinning depend on the treatment of tree debris. Forest Ecology and Management, 2009, 259, 71-80.	3.2	49
63	Linkages between biocrust development and water erosion and implications for erosion model implementation. Geoderma, 2020, 357, 113973.	5.1	49
64	Biocrustâ€forming mosses mitigate the impact of aridity on soil microbial communities in drylands: observational evidence from three continents. New Phytologist, 2018, 220, 824-835.	7.3	46
65	Moss-biocrusts strongly decrease soil surface albedo, altering land-surface energy balance in a dryland ecosystem. Science of the Total Environment, 2020, 741, 140425.	8.0	45
66	Enhanced Recovery of Biological Soil Crusts After Disturbance. Ecological Studies, 2016, , 499-523.	1.2	39
67	Chronic nitrogen addition induces a cascade of plant community responses with both seasonal and progressive dynamics. Science of the Total Environment, 2018, 626, 99-108.	8.0	39
68	Responses of biological soil crusts to rehabilitation strategies. Journal of Arid Environments, 2019, 163, 77-85.	2.4	39
69	Successful field cultivation of moss biocrusts on disturbed soil surfaces in the short term. Plant and Soil, 2018, 429, 227-240.	3.7	37
70	Effects of Local-Scale Disturbance on Biocrusts. Ecological Studies, 2016, , 429-449.	1.2	35
71	Surface indicators are correlated with soil multifunctionality in global drylands. Journal of Applied Ecology, 2020, 57, 424-435.	4.0	35
72	Early-successional vegetation changes after roadside prairie restoration modify processes related with soil functioning by changing microbial functional diversity. Soil Biology and Biochemistry, 2011, 43, 1245-1253.	8.8	33

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73	A global database of shrub encroachment effects on ecosystem structure and functioning. Ecology, 2012, 93, 2499-2499.	3.2	33
74	Human impacts and aridity differentially alter soil <scp>N</scp> availability in drylands worldwide. Global Ecology and Biogeography, 2016, 25, 36-45.	5.8	33
75	Climatic conditions, soil fertility and atmospheric nitrogen deposition largely determine the structure and functioning of microbial communities in biocrust-dominated Mediterranean drylands. Plant and Soil, 2016, 399, 271-282.	3.7	32
76	Stand-structural effects on Heterobasidion abietinum-related mortality following drought events in Abies pinsapo. Oecologia, 2010, 164, 1107-1119.	2.0	30
77	Biogeochemical indicators of elevated nitrogen deposition in semiarid Mediterranean ecosystems. Environmental Monitoring and Assessment, 2014, 186, 5831-5842.	2.7	30
78	Responses of Ecosystem Carbon Cycling to Climate Change Treatments Along an Elevation Gradient. Ecosystems, 2011, 14, 1066-1080.	3.4	27
79	Biocrusts enhance non-rainfall water deposition and alter its distribution in dryland soils. Journal of Hydrology, 2021, 595, 126050.	5.4	27
80	Ecosystem development in roadside grasslands: biotic control, plantâ€"soil interactions, and dispersal limitations. , 2011, 21, 2806-2821.		26
81	Rare drought-induced mortality of juniper is enhanced by edaphic stressors and influenced by stand density. Journal of Arid Environments, 2012, 76, 9-16.	2.4	26
82	Physiological responses of artificial moss biocrusts to dehydration-rehydration process and heat stress on the Loess Plateau, China. Journal of Arid Land, 2017, 9, 419-431.	2.3	26
83	Inoculation and habitat amelioration efforts in biological soil crust recovery vary by desert and soil texture. Restoration Ecology, 2020, 28, S96.	2.9	26
84	Rapid ex situ culture of N-fixing soil lichens and biocrusts is enhanced by complementarity. Plant and Soil, 2016, 408, 415-428.	3.7	25
85	Addressing barriers to improve biocrust colonization and establishment in dryland restoration. Restoration Ecology, 2020, 28, S150.	2.9	25
86	Short-term monitoring of aridland lichen cover and biomass using photography and fatty acids. Journal of Arid Environments, 2008, 72, 869-878.	2.4	24
87	A practical guide to measuring functional indicators and traits in biocrusts. Restoration Ecology, 2020, 28, S56.	2.9	23
88	Sympatric pairings of dryland grass populations, mycorrhizal fungi and associated soil biota enhance mutualism and ameliorate drought stress. Journal of Ecology, 2021, 109, 1210-1223.	4.0	23
89	Aspects of soil lichen biodiversity and aggregation interact to influence subsurface microbial function. Plant and Soil, 2015, 386, 303-316.	3.7	22
90	Biocrust moss populations differ in growth rates, stress response, and microbial associates. Plant and Soil, 2018, 429, 187-198.	3.7	22

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91	Insolation and disturbance history drive biocrust biodiversity in Western Montana rangelands. Plant and Soil, 2018, 430, 151-169.	3.7	21
92	Estimation of annual CO2 efflux of moss biocrust through measuring and simulating its respiration rate in a semiarid climate. Geoderma, 2020, 376, 114560.	5.1	21
93	Nutrient availability affects pigment production but not growth in lichens ofÂbiological soil crusts. Soil Biology and Biochemistry, 2008, 40, 2819-2826.	8.8	20
94	Applying community ecological theory to maximize productivity of cultivated biocrusts. Ecological Applications, 2017, 27, 1958-1969.	3.8	20
95	Global drivers of methane oxidation and denitrifying gene distribution in drylands. Global Ecology and Biogeography, 2019, 28, 1230-1243.	5.8	20
96	Improving field success of biocrust rehabilitation materials: hardening the organisms or softening the environment?. Restoration Ecology, 2020, 28, S177.	2.9	19
97	Inferring local competition intensity from patch size distributions: a test using biological soil crusts. Oikos, 2012, 121, 1914-1922.	2.7	18
98	Temporal and abiotic fluctuations may be preventing successful rehabilitation of soilâ€stabilizing biocrust communities. Ecological Applications, 2019, 29, e01908.	3.8	18
99	Soil functional responses to ecological restoration treatments in frequentâ€fire forests of the western United States: a systematic review. Restoration Ecology, 2017, 25, 497-508.	2.9	17
100	Strategies of desiccation tolerance vary across life phases in the moss <i>Syntrichia caninervis</i>. American Journal of Botany, 2021, 108, 249-262.	1.7	17
101	Genetically-based trait variation within a foundation tree species influences a dominant bark lichen. Fungal Ecology, 2011, 4, 103-109.	1.6	16
102	Indicators of vehicular emission inputs into semi-arid roadside ecosystems. Journal of Arid Environments, 2016, 134, 150-159.	2.4	16
103	Do soil inoculants accelerate dryland restoration? A simultaneous assessment of biocrusts and mycorrhizal fungi. Restoration Ecology, 2020, 28, S115.	2.9	16
104	Familiar soil conditions help <scp><i>Pinus ponderosa</i></scp> seedlings cope with warming and drying climate. Restoration Ecology, 2020, 28, S344.	2.9	15
105	Biocrusts: Engineers and architects of surface soil properties, functions, and processes in dryland ecosystems. Geoderma, 2022, 424, 116015.	5.1	14
106	Elevated Rocky Mountain elk numbers prevent positive effects of fire on quaking aspen (Populus) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	3.2	13
107	Microclimate and Propagule Availability are Equally Important for Rehabilitation of Dryland N-Fixing Lichens. Restoration Ecology, 2010, 18, 30-33.	2.9	12
108	Biological Soil Crusts as a Model System in Ecology. Ecological Studies, 2016, , 407-425.	1.2	12

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109	Shifts in the importance of the species pool and environmental controls of epiphytic bryophyte richness across multiple scales. Oecologia, 2018, 186, 805-816.	2.0	12
110	Improved, scalable techniques to cultivate fire mosses for rehabilitation. Restoration Ecology, 2020, 28, S17.	2.9	12
111	Morphological and physiological traits in relation to carbon balance in a diverse clade of dryland mosses. Plant, Cell and Environment, 2019, 42, 3140-3151.	5.7	11
112	Post-wildfire moss colonisation and soil functional enhancement in forests of the southwestern USA. International Journal of Wildland Fire, 2020, 29, 530.	2.4	11
113	Biocrusts Influence Vascular Plant Community Development, Promoting Native Plant Dominance. Frontiers in Ecology and Evolution, 2022, 10, .	2.2	11
114	Restoring post-fire ecosystems with biocrusts: Living, photosynthetic soil surfaces. Current Opinion in Environmental Science and Health, 2021, 23, 100273.	4.1	10
115	Effects of moss biocrusts on near-surface soil moisture are underestimated in drylands: Insights from a heat-pulse soil moisture sensor. Geoderma, 2022, 413, 115763.	5.1	10
116	Community composition influences ecosystem resistance and production more than species richness or intraspecific diversity. Oikos, 2021, 130, 1399-1410.	2.7	9
117	Developing climateâ€smart restoration: Can plant microbiomes be hardened against heat waves?. Ecological Applications, 2018, 28, 1594-1605.	3.8	8
118	Biocrust and the soil surface: Influence of climate, disturbance, and biocrust recovery on soil surface roughness. Geoderma, 2021, 403, 115369.	5.1	8
119	Adapting mechanized vascular plant seed dispersal technologies to biocrust moss restoration. Restoration Ecology, 2020, 28, S25.	2.9	7
120	Producing moss-colonized burlap fabric in a fog chamber for restoration of biocrust. Ecological Engineering, 2020, 158, 106019.	3.6	7
121	Impacts of moss-dominated biocrusts on rainwater infiltration, vertical water flow, and surface soil evaporation in drylands. Journal of Hydrology, 2022, 612, 128176.	5.4	6
122	Genotypic confirmation of a biased phenotypic sex ratio in a dryland moss using restriction fragment length polymorphisms. Applications in Plant Sciences, 2022, 10, e11467.	2.1	5
123	Arthropod community similarity in clonal stands of aspen: A test of the genetic similarity rule. Ecoscience, 2012, 19, 48-58.	1.4	4
124	5. Bryophyte and Lichen Diversity on Arid Soils: Determinants and Consequences. , 2017, , 73-96.		4
125	Broader Impacts for Ecologists: Biological Soil Crust as a Model System for Education. Frontiers in Microbiology, 2020, 11, 577922.	3.5	4
126	Pelletized inoculation of fire mosses in severely burned conifer forests overcomes initial barriers to Bryum argenteum establishment but does not increase cover. Ecological Engineering, 2022, 176, 106513.	3.6	3

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127	Responses of Biocrust and Associated Soil Bacteria to Novel Climates Are Not Tightly Coupled. Frontiers in Microbiology, 2022, 13, 821860.	3.5	3
128	Mid-Scale Drivers of Variability in Dry Mixed-Conifer Forests of the Mogollon Rim, Arizona. Forests, 2021, 12, 622.	2.1	2
129	Applying Threshold Concepts to Conservation Management of Dryland Ecosystems: Case Studies on the Colorado Plateau. , 2014, , 101-130.		2
130	Treatment Effects on Performance of N-Fixing Lichens in Disturbed Soil Crusts of the Colorado Plateau. , 2002, 12, 1391.		1
131	How Long-Term Chemical Fertilization of Sloping Cropland Enhances Yield and Fertility without Compromising Coil Structure. Polish Journal of Environmental Studies, 2017, 26, 1797-1807.	1.2	1
132	Spatial Modeling of Biological Soil Crusts to Support Rangeland Assessment and Monitoring. Journal of Range Management, 2006, 59, .	0.3	0