

# Colin P Osborne

## List of Publications by Year in descending order

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113  
papers

7,348  
citations

57758

44  
h-index

64796

79  
g-index

118  
all docs

118  
docs citations

118  
times ranked

7597  
citing authors

#	ARTICLE	IF	CITATIONS
1	The Origins of C <sub>4</sub> Grasslands: Integrating Evolutionary and Ecosystem Science. <i>Science</i> , 2010, 328, 587-591.	12.6	899
2	The origin of the savanna biome. <i>Global Change Biology</i> , 2006, 12, 2023-2031.	9.5	310
3	Anatomical enablers and the evolution of C <sub>4</sub> photosynthesis in grasses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 1381-1386.	7.1	239
4	How can we make plants grow faster? A source-sink perspective on growth rate. <i>Journal of Experimental Botany</i> , 2016, 67, 31-45.	4.8	228
5	Nature's green revolution: the remarkable evolutionary rise of C <sub>4</sub> plants. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2006, 361, 173-194.	4.0	224
6	Ecophysiological traits in C <sub>3</sub> and C <sub>4</sub> grasses: a phylogenetically controlled screening experiment. <i>New Phytologist</i> , 2010, 185, 780-791.	7.3	196
7	Comment on "The global tree restoration potential". <i>Science</i> , 2019, 366, .	12.6	185
8	Global grass (Poaceae) success underpinned by traits facilitating colonization, persistence and habitat transformation. <i>Biological Reviews</i> , 2018, 93, 1125-1144.	10.4	178
9	Evolution of C <sub>4</sub> plants: a new hypothesis for an interaction of CO <sub>2</sub> and water relations mediated by plant hydraulics. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2012, 367, 583-600.	4.0	172
10	Atmosphere, ecology and evolution: what drove the Miocene expansion of C <sub>4</sub> grasslands?. <i>Journal of Ecology</i> , 2008, 96, 35-45.	4.0	169
11	Molecular Dating, Evolutionary Rates, and the Age of the Grasses. <i>Systematic Biology</i> , 2014, 63, 153-165.	5.6	155
12	Ecological selection pressures for C <sub>4</sub> photosynthesis in the grasses. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2009, 276, 1753-1760.	2.6	151
13	Drought constraints on C <sub>4</sub> photosynthesis: stomatal and metabolic limitations in C <sub>3</sub> and C <sub>4</sub> subspecies of <i>Alloteropsis semialata</i> . <i>Journal of Experimental Botany</i> , 2007, 58, 1351-1363.	4.8	136
14	Fire and fire-adapted vegetation promoted C <sub>4</sub> expansion in the late Miocene. <i>New Phytologist</i> , 2012, 195, 653-666.	7.3	131
15	A global database of C <sub>4</sub> photosynthesis in grasses. <i>New Phytologist</i> , 2014, 204, 441-446.	7.3	123
16	Determinants of flammability in savanna grass species. <i>Journal of Ecology</i> , 2016, 104, 138-148.	4.0	123
17	Adaptive Evolution of C <sub>4</sub> Photosynthesis through Recurrent Lateral Gene Transfer. <i>Current Biology</i> , 2012, 22, 445-449.	3.9	121
18	C <sub>4</sub> eudicots are not younger than C <sub>4</sub> monocots. <i>Journal of Experimental Botany</i> , 2011, 62, 3171-3181.	4.8	115

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19	Partitioning the Components of Relative Growth Rate: How Important Is Plant Size Variation?. <i>American Naturalist</i> , 2010, 176, E152-E161.	2.1	114
20	Human impacts in African savannas are mediated by plant functional traits. <i>New Phytologist</i> , 2018, 220, 10-24.	7.3	114
21	Deconstructing Kranz anatomy to understand C4 evolution. <i>Journal of Experimental Botany</i> , 2014, 65, 3357-3369.	4.8	103
22	Towards an integrative model of C4 photosynthetic subtypes: insights from comparative transcriptome analysis of NAD-ME, NADP-ME, and PEP-CK C4 species. <i>Journal of Experimental Botany</i> , 2014, 65, 3579-3593.	4.8	102
23	The evolutionary ecology of C <sub>4</sub> plants. <i>New Phytologist</i> , 2014, 204, 765-781.	7.3	98
24	Lateral transfers of large DNA fragments spread functional genes among grasses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 4416-4425.	7.1	94
25	Physiological advantages of C <sub>4</sub> grasses in the field: a comparative experiment demonstrating the importance of drought. <i>Global Change Biology</i> , 2014, 20, 1992-2003.	9.5	93
26	How did the domestication of Fertile Crescent grain crops increase their yields?. <i>Functional Ecology</i> , 2017, 31, 387-397.	3.6	93
27	Does Leaf Position within a Canopy Affect Acclimation of Photosynthesis to Elevated CO <sub>2</sub> ? <i>Plant Physiology</i> , 1998, 117, 1037-1045.	4.8	81
28	C4 photosynthesis boosts growth by altering physiology, allocation and size. <i>Nature Plants</i> , 2016, 2, 16038.	9.3	81
29	Photosynthetic innovation broadens the niche within a single species. <i>Ecology Letters</i> , 2015, 18, 1021-1029.	6.4	75
30	Cell density and airspace patterning in the leaf can be manipulated to increase leaf photosynthetic capacity. <i>Plant Journal</i> , 2017, 92, 981-994.	5.7	74
31	AusTraits, a curated plant trait database for the Australian flora. <i>Scientific Data</i> , 2021, 8, 254.	5.3	73
32	Can phylogenetics identify C4 origins and reversals?. <i>Trends in Ecology and Evolution</i> , 2010, 25, 403-409.	8.7	68
33	Fire ecology of C <sub>3</sub> and C <sub>4</sub> grasses depends on evolutionary history and frequency of burning but not photosynthetic type. <i>Ecology</i> , 2015, 96, 2679-2691.	3.2	65
34	Evolutionary implications of C <sub>3</sub> →C <sub>4</sub> intermediates in the grass <i>Alloteropsis semialata</i> . <i>Plant, Cell and Environment</i> , 2016, 39, 1874-1885.	5.7	64
35	Mesophyll porosity is modulated by the presence of functional stomata. <i>Nature Communications</i> , 2019, 10, 2825.	12.8	63
36	Carbon loss by deciduous trees in a CO <sub>2</sub> -rich ancient polar environment. <i>Nature</i> , 2003, 424, 60-62.	27.8	62

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37	Phylogenetic patterns and phenotypic profiles of the species of plants and mammals farmed for food. <i>Nature Ecology and Evolution</i> , 2018, 2, 1808-1817.	7.8	59
38	Genetic Enablers Underlying the Clustered Evolutionary Origins of C4 Photosynthesis in Angiosperms. <i>Molecular Biology and Evolution</i> , 2015, 32, 846-858.	8.9	57
39	Comment on "The extent of forest in dryland biomes". <i>Science</i> , 2017, 358, .	12.6	57
40	Highly Expressed Genes Are Preferentially Co-Opted for C4 Photosynthesis. <i>Molecular Biology and Evolution</i> , 2018, 35, 94-106.	8.9	57
41	Plant growth rates and seed size: a reevaluation. <i>Ecology</i> , 2012, 93, 1283-1289.	3.2	54
42	Carbon source-sink limitations differ between two species with contrasting growth strategies. <i>Plant, Cell and Environment</i> , 2016, 39, 2460-2472.	5.7	53
43	Did greater burial depth increase the seed size of domesticated legumes?. <i>Journal of Experimental Botany</i> , 2013, 64, 4101-4108.	4.8	51
44	Water relations traits of C4 grasses depend on phylogenetic lineage, photosynthetic pathway, and habitat water availability. <i>Journal of Experimental Botany</i> , 2015, 66, 761-773.	4.8	51
45	Genome biogeography reveals the intraspecific spread of adaptive mutations for a complex trait. <i>Molecular Ecology</i> , 2016, 25, 6107-6123.	3.9	51
46	Introgression and repeated co-option facilitated the recurrent emergence of C <sub>4</sub> photosynthesis among close relatives. <i>Evolution; International Journal of Organic Evolution</i> , 2017, 71, 1541-1555.	2.3	51
47	Phylogenetic niche conservatism in C4 grasses. <i>Oecologia</i> , 2012, 170, 835-845.	2.0	49
48	A molecular phylogeny of the genus <i>Alloteropsis</i> (Panicoideae, Poaceae) suggests an evolutionary reversion from C4 to C3 photosynthesis. <i>Annals of Botany</i> , 2009, 103, 127-136.	2.9	45
49	The recurrent assembly of C4 photosynthesis, an evolutionary tale. <i>Photosynthesis Research</i> , 2013, 117, 163-175.	2.9	43
50	Mechanisms driving an unusual latitudinal diversity gradient for grasses. <i>Global Ecology and Biogeography</i> , 2014, 23, 61-75.	5.8	43
51	Developmental and biophysical determinants of grass leaf size worldwide. <i>Nature</i> , 2021, 592, 242-247.	27.8	43
52	Low temperature effects on leaf physiology and survivorship in the C3 and C4 subspecies of <i>Alloteropsis semialata</i> . <i>Journal of Experimental Botany</i> , 2007, 59, 1743-1754.	4.8	41
53	Functional Traits Differ between Cereal Crop Progenitors and Other Wild Grasses Gathered in the Neolithic Fertile Crescent. <i>PLoS ONE</i> , 2014, 9, e87586.	2.5	41
54	C <sub>4</sub> anatomy can evolve via a single developmental change. <i>Ecology Letters</i> , 2019, 22, 302-312.	6.4	40

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55	Environmental factors determining the phylogenetic structure of C <sub>4</sub> grass communities. <i>Journal of Biogeography</i> , 2012, 39, 232-246.	3.0	38
56	Unconscious selection drove seed enlargement in vegetable crops. <i>Evolution Letters</i> , 2017, 1, 64-72.	3.3	37
57	Seasonal differences in photosynthesis between the C <sub>3</sub> and C <sub>4</sub> subspecies of <i>Alloteropsis semialata</i> are offset by frost and drought. <i>Plant, Cell and Environment</i> , 2008, 31, 1038-1050.	5.7	36
58	Still armed after domestication? Impacts of domestication and agronomic selection on silicon defences in cereals. <i>Functional Ecology</i> , 2017, 31, 2108-2117.	3.6	35
59	Contrasting seasonal patterns of carbon gain in evergreen and deciduous trees of ancient polar forests. <i>Paleobiology</i> , 2005, 31, 141-150.	2.0	34
60	Experimental investigation of fire ecology in the C <sub>3</sub> and C <sub>4</sub> subspecies of <i>Alloteropsis semialata</i> . <i>Journal of Ecology</i> , 2010, 98, 1196-1203.	4.0	34
61	Biogeographically distinct controls on C <sub>3</sub> and C <sub>4</sub> grass distributions: merging community and physiological ecology. <i>Global Ecology and Biogeography</i> , 2015, 24, 304-313.	5.8	33
62	C <sub>4</sub> photosynthesis evolved in warm climates but promoted migration to cooler ones. <i>Ecology Letters</i> , 2018, 21, 376-383.	6.4	30
63	Gene duplication and dosage effects during the early emergence of C4 photosynthesis in the grass genus <i>Alloteropsis</i> . <i>Journal of Experimental Botany</i> , 2018, 69, 1967-1980.	4.8	29
64	Response of wild C <sub>4</sub> crop progenitors to subambient CO <sub>2</sub> highlights a possible role in the origin of agriculture. <i>Global Change Biology</i> , 2008, 14, 576-587.	9.5	28
65	A non-targeted metabolomics approach to quantifying differences in root storage between fast- and slow-growing plants. <i>New Phytologist</i> , 2012, 196, 200-211.	7.3	28
66	Increased leaf mesophyll porosity following transient retinoblastoma-related protein silencing is revealed by microcomputed tomography imaging and leads to a systemic level physiological response to the altered cell division pattern. <i>Plant Journal</i> , 2013, 76, 914-929.	5.7	28
67	Continued Adaptation of C4 Photosynthesis After an Initial Burst of Changes in the Andropogoneae Grasses. <i>Systematic Biology</i> , 2020, 69, 445-461.	5.6	27
68	Leaf cold acclimation and freezing injury in C3 and C4 grasses of the Mongolian Plateau. <i>Journal of Experimental Botany</i> , 2008, 59, 4161-4170.	4.8	26
69	Were Fertile Crescent crop progenitors higher yielding than other wild species that were never domesticated?. <i>New Phytologist</i> , 2015, 207, 905-913.	7.3	26
70	Population-Specific Selection on Standing Variation Generated by Lateral Gene Transfers in a Grass. <i>Current Biology</i> , 2019, 29, 3921-3927.e5.	3.9	26
71	The global distribution of grass functional traits within grassy biomes. <i>Journal of Biogeography</i> , 2020, 47, 553-565.	3.0	24
72	Resprouting grasses are associated with less frequent fire than seeders. <i>New Phytologist</i> , 2021, 230, 832-844.	7.3	24

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73	Key changes in gene expression identified for different stages of C4 evolution in <i>Alloteropsis semialata</i> . <i>Journal of Experimental Botany</i> , 2019, 70, 3255-3268.	4.8	23
74	The origins of agriculture: Intentions and consequences. <i>Journal of Archaeological Science</i> , 2021, 125, 105290.	2.4	23
75	Molecular phylogenies disprove a hypothesized C4 reversion in <i>Eragrostis walteri</i> (Poaceae). <i>Annals of Botany</i> , 2011, 107, 321-325.	2.9	22
76	Re-analysis of archaeobotanical remains from pre- and early agricultural sites provides no evidence for a narrowing of the wild plant food spectrum during the origins of agriculture in southwest Asia. <i>Vegetation History and Archaeobotany</i> , 2019, 28, 449-463.	2.1	22
77	Photosynthetic acclimation and resource use by the C <sub>3</sub> and C <sub>4</sub> subspecies of <i>Alloteropsis semialata</i> in low CO <sub>2</sub> atmospheres. <i>Global Change Biology</i> , 2013, 19, 900-910.	9.5	21
78	The Penalty of a Long, Hot Summer. Photosynthetic Acclimation to High CO <sub>2</sub> and Continuous Light in "Living Fossil" Conifers. <i>Plant Physiology</i> , 2003, 133, 803-812.	4.8	20
79	The stable isotope ecology of mycalesine butterflies: implications for plant-insect evolution. <i>Functional Ecology</i> , 2016, 30, 1936-1946.	3.6	20
80	Lineage-based functional types: characterising functional diversity to enhance the representation of ecological behaviour in Land Surface Models. <i>New Phytologist</i> , 2020, 228, 15-23.	7.3	20
81	C <sub>4</sub> photosynthesis and the economic spectra of leaf and root traits independently influence growth rates in grasses. <i>Journal of Ecology</i> , 2020, 108, 1899-1909.	4.0	20
82	Water-use responses of "living fossil" conifers to CO <sub>2</sub> enrichment in a simulated Cretaceous polar environment. <i>Annals of Botany</i> , 2009, 104, 179-188.	2.9	19
83	Taxonomie: a software package for linking biological species data. <i>Ecology and Evolution</i> , 2013, 3, 1262-1265.	1.9	18
84	Contrasted histories of organelle and nuclear genomes underlying physiological diversification in a grass species. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2020, 287, 20201960.	2.6	18
85	Crop origins explain variation in global agricultural relevance. <i>Nature Plants</i> , 2021, 7, 598-607.	9.3	17
86	Sensitivity of tree growth to a high CO <sub>2</sub> environment: consequences for interpreting the characteristics of fossil woods from ancient "greenhouse" worlds. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> , 2002, 182, 15-29.	2.3	15
87	Climatic Controls on C4 Grassland Distributions During the Neogene: A Model-Data Comparison. <i>Frontiers in Ecology and Evolution</i> , 2018, 6, .	2.2	15
88	High silicon concentrations in grasses are linked to environmental conditions and not associated with C <sub>4</sub> photosynthesis. <i>Global Change Biology</i> , 2020, 26, 7128-7143.	9.5	15
89	Was low atmospheric CO <sub>2</sub> a limiting factor in the origin of agriculture?. <i>Environmental Archaeology</i> , 2010, 15, 113-123.	1.2	14
90	Land degradation in South Africa: Justice and climate change in tension. <i>People and Nature</i> , 2021, 3, 978-989.	3.7	14

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91	Preference for C <sub>4</sub> shade grasses increases hatchling performance in the butterfly, <i>Bicyclus safitza</i> . <i>Ecology and Evolution</i> , 2016, 6, 5246-5255.	1.9	13
92	Yield responses of wild C <sub>3</sub> and C <sub>4</sub> crop progenitors to subambient CO <sub>2</sub> : a test for the role of CO <sub>2</sub> limitation in the origin of agriculture. <i>Global Change Biology</i> , 2017, 23, 380-393.	9.5	13
93	Frequent fires prime plant developmental responses to burning. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2019, 286, 20191315.	2.6	13
94	Low dispersal and ploidy differences in a grass maintain photosynthetic diversity despite gene flow and habitat overlap. <i>Molecular Ecology</i> , 2021, 30, 2116-2130.	3.9	12
95	A process-based model of conifer forest structure and function with special emphasis on leaf lifespan. <i>Global Biogeochemical Cycles</i> , 2002, 16, 44-1-44-23.	4.9	11
96	Nutrient sink limitation constrains growth in two barley species with contrasting growth strategies. <i>Plant Direct</i> , 2018, 2, e00094.	1.9	11
97	C <sub>4</sub> savanna grasses fail to maintain assimilation in drying soil under low CO <sub>2</sub> compared with C <sub>3</sub> trees despite lower leaf water demand. <i>Functional Ecology</i> , 2019, 33, 388-398.	3.6	10
98	Bundle sheath chloroplast volume can house sufficient Rubisco to avoid limiting C <sub>4</sub> photosynthesis during chilling. <i>Journal of Experimental Botany</i> , 2019, 70, 357-365.	4.8	9
99	Large seeds provide an intrinsic growth advantage that depends on leaf traits and root allocation. <i>Functional Ecology</i> , 2021, 35, 2168-2178.	3.6	9
100	Forest regeneration on European sheep pasture is an economically viable climate change mitigation strategy. <i>Environmental Research Letters</i> , 2020, 15, 104090.	5.2	9
101	Drought exposure leads to rapid acquisition and inheritance of herbicide resistance in the weed <i>Alopecurus myosuroides</i> . <i>Ecology and Evolution</i> , 2022, 12, e8563.	1.9	9
102	Differential freezing resistance and photoprotection in C <sub>3</sub> and C <sub>4</sub> eudicots and grasses. <i>Journal of Experimental Botany</i> , 2013, 64, 2183-2191.	4.8	8
103	A theoretical analysis of how plant growth is limited by carbon allocation strategies and respiration. <i>In Silico Plants</i> , 2019, 1, .	1.9	8
104	Disparities among crop species in the evolution of growth rates: the role of distinct origins and domestication histories. <i>New Phytologist</i> , 2022, 233, 995-1010.	7.3	8
105	Savanna fire regimes depend on grass trait diversity. <i>Trends in Ecology and Evolution</i> , 2022, 37, 749-758.	8.7	8
106	Traits explain sorting of C <sub>4</sub> grasses along a global precipitation gradient. <i>Ecology and Evolution</i> , 2021, 11, 2669-2680.	1.9	7
107	Phylogeny and ecological processes influence grass coexistence at different spatial scales within the steppe biome. <i>Oecologia</i> , 2019, 191, 25-38.	2.0	6
108	Reduced plant water status under sub-ambient pCO <sub>2</sub> limits plant productivity in the wild progenitors of C <sub>3</sub> and C <sub>4</sub> cereals. <i>Annals of Botany</i> , 2016, 118, 1163-1173.	2.9	5

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109	Hydroclimate variability was the main control on fire activity in northern Africa over the last 50,000 years. <i>Quaternary Science Reviews</i> , 2022, 288, 107578.	3.0	4
110	Chapter 17 The Geologic History of C4 Plants. <i>Advances in Photosynthesis and Respiration</i> , 2010, , 339-357.	1.0	3
111	Editorial: Revisiting the Biome Concept With A Functional Lens. <i>Frontiers in Ecology and Evolution</i> , 2019, 7, .	2.2	3
112	The morphogenesis of fast growth in plants. <i>New Phytologist</i> , 2020, 228, 1306-1315.	7.3	3
113	Upregulation of C <sub>4</sub> characteristics does not consistently improve photosynthetic performance in intraspecific hybrids of a grass. <i>Plant, Cell and Environment</i> , 2022, 45, 1398-1411.	5.7	3