Colin P Osborne

List of Publications by Year
in descending order

113	7,348	57752 44	64791 79
papers	citations	h-index	g-index

118	118	118	7597
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The Origins of C ₄ Grasslands: Integrating Evolutionary and Ecosystem Science. Science, 2010, 328, 587-591.	12.6	899
2	The origin of the savanna biome. Global Change Biology, 2006, 12, 2023-2031.	9.5	310
3	Anatomical enablers and the evolution of C ₄ photosynthesis in grasses. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 1381-1386.	7.1	239
4	How can we make plants grow faster? A sourceâ€“sink perspective on growth rate. Journal of Experimental Botany, 2016, 67, 31-45.	4.8	228
5	Nature's green revolution: the remarkable evolutionary rise of C 4 plants. Philosophical Transactions of the Royal Society B: Biological Sciences, 2006, 361, 173-194.	4.0	224
6	Ecophysiological traits in C₃ and C₄ grasses: a phylogenetically controlled screening experiment. New Phytologist, 2010, 185, 780-791.	7.3	196
7	Comment on â€œThe global tree restoration potentialâ€. Science, 2019, 366, .	12.6	185
8	Global grass (<scp>P</scp>oaceae) success underpinned by traits facilitating colonization, persistence and habitat transformation. Biological Reviews, 2018, 93, 1125-1144.	10.4	178
9	Evolution of C ₄ plants: a new hypothesis for an interaction of CO ₂ and water relations mediated by plant hydraulics. Philosophical Transactions of the Royal Society B: Biological Sciences, 2012, 367, 583-600.	4.0	172
10	Atmosphere, ecology and evolution: what drove the Miocene expansion of C₄ grasslands?. Journal of Ecology, 2008, 96, 35-45.	4.0	169
11	Molecular Dating, Evolutionary Rates, and the Age of the Grasses. Systematic Biology, 2014, 63, 153-165.	5.6	155
12	Ecological selection pressures for C ₄ photosynthesis in the grasses. Proceedings of the Royal Society B: Biological Sciences, 2009, 276, 1753-1760.	2.6	151
13	Drought constraints on C4 photosynthesis: stomatal and metabolic limitations in C3 and C4 subspecies of Alloteropsis semialata. Journal of Experimental Botany, 2007, 58, 1351-1363.	4.8	136
14	Fire and fireâ€adapted vegetation promoted C₄ expansion in the late Miocene. New Phytologist, 2012, 195, 653-666.	7.3	131
15	A global database of <scp>C</scp>₄ photosynthesis in grasses. New Phytologist, 2014, 204, 441-446.	7.3	123
16	Determinants of flammability in savanna grass species. Journal of Ecology, 2016, 104, 138-148.	4.0	123
17	Adaptive Evolution of C4 Photosynthesis through Recurrent Lateral Gene Transfer. Current Biology, 2012, 22, 445-449.	3.9	121
18	C4 eudicots are not younger than C4 monocots. Journal of Experimental Botany, 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?. American Naturalist, 2010, 176, E152-E161.	2.1	114
20	Human impacts in African savannas are mediated by plant functional traits. New Phytologist, 2018, 220, 10-24.	7.3	114
21	Deconstructing Kranz anatomy to understand C4 evolution. Journal of Experimental Botany, 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. Journal of Experimental Botany, 2014, 65, 3579-3593.	4.8	102
23	The evolutionary ecology of C₄ plants. New Phytologist, 2014, 204, 765-781.	7.3	98
24	Lateral transfers of large DNA fragments spread functional genes among grasses. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 4416-4425.	7.1	94
25	Physiological advantages of C ₄ grasses in the field: a comparative experiment demonstrating the importance of drought. Global Change Biology, 2014, 20, 1992-2003.	9.5	93
26	How did the domestication of Fertile Crescent grain crops increase their yields?. Functional Ecology, 2017, 31, 387-397.	3.6	93
27	Does Leaf Position within a Canopy Affect Acclimation of Photosynthesis to Elevated CO2?1. Plant Physiology, 1998, 117, 1037-1045.	4.8	81
28	C4 photosynthesis boosts growth by altering physiology, allocation and size. Nature Plants, 2016, 2, 16038.	9.3	81
29	Photosynthetic innovation broadens the niche within a single species. Ecology Letters, 2015, 18, 1021-1029.	6.4	75
30	Cell density and airspace patterning in the leaf can be manipulated to increase leaf photosynthetic capacity. Plant Journal, 2017, 92, 981-994.	5.7	74
31	AusTraits, a curated plant trait database for the Australian flora. Scientific Data, 2021, 8, 254.	5.3	73
32	Can phylogenetics identify C4 origins and reversals?. Trends in Ecology and Evolution, 2010, 25, 403-409.	8.7	68
33	Fire ecology of C₃ and C₄ grasses depends on evolutionary history and frequency of burning but not photosynthetic type. Ecology, 2015, 96, 2679-2691.	3.2	65
34	Evolutionary implications of C₃â€“C₄ intermediates in the grass <i>Alloteropsis semialata</i>. Plant, Cell and Environment, 2016, 39, 1874-1885.	5.7	64
35	Mesophyll porosity is modulated by the presence of functional stomata. Nature Communications, 2019, 10, 2825.	12.8	63
36	Carbon loss by deciduous trees in a CO2-rich ancient polar environment. Nature, 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. Nature Ecology and Evolution, 2018, 2, 1808-1817.	7.8	59
38	Genetic Enablers Underlying the Clustered Evolutionary Origins of C4 Photosynthesis in Angiosperms. Molecular Biology and Evolution, 2015, 32, 846-858.	8.9	57
39	Comment on â€œThe extent of forest in dryland biomesâ€• Science, 2017, 358, .	12.6	57
40	Highly Expressed Genes Are Preferentially Co-Opted for C4 Photosynthesis. Molecular Biology and Evolution, 2018, 35, 94-106.	8.9	57
41	Plant growth rates and seed size: a reâ€evaluation. Ecology, 2012, 93, 1283-1289.	3.2	54
42	Carbon sourceâ€“sink limitations differ between two species with contrasting growth strategies. Plant, Cell and Environment, 2016, 39, 2460-2472.	5.7	53
43	Did greater burial depth increase the seed size of domesticated legumes?. Journal of Experimental Botany, 2013, 64, 4101-4108.	4.8	51
44	Water relations traits of C4 grasses depend on phylogenetic lineage, photosynthetic pathway, and habitat water availability. Journal of Experimental Botany, 2015, 66, 761-773.	4.8	51
45	Genome biogeography reveals the intraspecific spread of adaptive mutations for a complex trait. Molecular Ecology, 2016, 25, 6107-6123.	3.9	51
46	Introgression and repeated co-option facilitated the recurrent emergence of C₄photosynthesis among close relatives. Evolution; International Journal of Organic Evolution, 2017, 71, 1541-1555.	2.3	51
47	Phylogenetic niche conservatism in C4 grasses. Oecologia, 2012, 170, 835-845.	2.0	49
48	A molecular phylogeny of the genus Alloteropsis (Panicoideae, Poaceae) suggests an evolutionary reversion from C4 to C3 photosynthesis. Annals of Botany, 2009, 103, 127-136.	2.9	45
49	The recurrent assembly of C4 photosynthesis, an evolutionary tale. Photosynthesis Research, 2013, 117, 163-175.	2.9	43
50	Mechanisms driving an unusual latitudinal diversity gradient for grasses. Global Ecology and Biogeography, 2014, 23, 61-75.	5.8	43
51	Developmental and biophysical determinants of grass leaf size worldwide. Nature, 2021, 592, 242-247.	27.8	43
52	Low temperature effects on leaf physiology and survivorship in the C3 and C4 subspecies of Alloteropsis semialata. Journal of Experimental Botany, 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. PLoS ONE, 2014, 9, e87586.	2.5	41
54	C₄ anatomy can evolve via a single developmental change. Ecology Letters, 2019, 22, 302-312.	6.4	40

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55	Environmental factors determining the phylogenetic structure of C₄grass communities. Journal of Biogeography, 2012, 39, 232-246.	3.0	38
56	Unconscious selection drove seed enlargement in vegetable crops. Evolution Letters, 2017, 1, 64-72.	3.3	37
57	Seasonal differences in photosynthesis between the C₃and C₄subspecies of<i>Alloteropsis semialata</i>are offset by frost and drought. Plant, Cell and Environment, 2008, 31, 1038-1050.	5.7	36
58	Still armed after domestication? Impacts of domestication and agronomic selection on silicon defences in cereals. Functional Ecology, 2017, 31, 2108-2117.	3.6	35
59	Contrasting seasonal patterns of carbon gain in evergreen and deciduous trees of ancient polar forests. Paleobiology, 2005, 31, 141-150.	2.0	34
60	Experimental investigation of fire ecology in the C₃ and C₄ subspecies of <i>Alloteropsis semialata</i>. Journal of Ecology, 2010, 98, 1196-1203.	4.0	34
61	Biogeographically distinct controls on <scp>C</scp>₃ and <scp>C</scp>₄ grass distributions: merging community and physiological ecology. Global Ecology and Biogeography, 2015, 24, 304-313.	5.8	33
62	C₄ photosynthesis evolved in warm climates but promoted migration to cooler ones. Ecology Letters, 2018, 21, 376-383.	6.4	30
63	Gene duplication and dosage effects during the early emergence of C4 photosynthesis in the grass genus Alloteropsis. Journal of Experimental Botany, 2018, 69, 1967-1980.	4.8	29
64	Response of wild C₄ crop progenitors to subambient CO₂ highlights a possible role in the origin of agriculture. Global Change Biology, 2008, 14, 576-587.	9.5	28
65	A nonâ€targeted metabolomics approach to quantifying differences in root storage between fastâ€and slowâ€growing plants. New Phytologist, 2012, 196, 200-211.	7.3	28
66	Increased leaf mesophyll porosity following transient retinoblastomaâ€related protein silencing is revealed by microcomputed tomography imaging and leads to a systemâ€level physiological response to the altered cell division pattern. Plant Journal, 2013, 76, 914-929.	5.7	28
67	Continued Adaptation of C4 Photosynthesis After an Initial Burst of Changes in the Andropogoneae Grasses. Systematic Biology, 2020, 69, 445-461.	5.6	27
68	Leaf cold acclimation and freezing injury in C3 and C4 grasses of the Mongolian Plateau. Journal of Experimental Botany, 2008, 59, 4161-4170.	4.8	26
69	Were Fertile Crescent crop progenitors higher yielding than other wild species that were never domesticated?. New Phytologist, 2015, 207, 905-913.	7.3	26
70	Population-Specific Selection on Standing Variation Generated by Lateral Gene Transfers in a Grass. Current Biology, 2019, 29, 3921-3927.e5.	3.9	26
71	The global distribution of grass functional traits within grassy biomes. Journal of Biogeography, 2020, 47, 553-565.	3.0	24
72	Resprouting grasses are associated with less frequent fire than seeders. New Phytologist, 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 Alloteropsis semialata. Journal of Experimental Botany, 2019, 70, 3255-3268.	4.8	23
74	The origins of agriculture: Intentions and consequences. Journal of Archaeological Science, 2021, 125, 105290.	2.4	23
75	Molecular phylogenies disprove a hypothesized C4 reversion in Eragrostis walteri (Poaceae). Annals of Botany, 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. Vegetation History and Archaeobotany, 2019, 28, 449-463.	2.1	22
77	Photosynthetic acclimation and resource use by the C₃ and C₄ subspecies of <i><scp>A</scp>lloteropsis semialata</i> in low <scp><scp>CO</scp></scp>₂ atmospheres. Global Change Biology, 2013, 19, 900-910.	9.5	21
78	The Penalty of a Long, Hot Summer. Photosynthetic Acclimation to High CO2 and Continuous Light in â€œLiving Fossilâ€• Conifers. Plant Physiology, 2003, 133, 803-812.	4.8	20
79	The stable isotope ecology of mycalesine butterflies: implications for plantâ€“insectÂcoâ€evolution. Functional Ecology, 2016, 30, 1936-1946.	3.6	20
80	Lineageâ€based functional types: characterising functional diversity to enhance the representation of ecological behaviour in Land Surface Models. New Phytologist, 2020, 228, 15-23.	7.3	20
81	C₄ photosynthesis and the economic spectra of leaf and root traits independently influence growth rates in grasses. Journal of Ecology, 2020, 108, 1899-1909.	4.0	20
82	Water-use responses of â€˜living fossilâ€™ conifers to CO2 enrichment in a simulated Cretaceous polar environment. Annals of Botany, 2009, 104, 179-188.	2.9	19
83	Taxonome: a software package for linking biological species data. Ecology and Evolution, 2013, 3, 1262-1265.	1.9	18
84	Contrasted histories of organelle and nuclear genomes underlying physiological diversification in a grass species. Proceedings of the Royal Society B: Biological Sciences, 2020, 287, 20201960.	2.6	18
85	Crop origins explain variation in global agricultural relevance. Nature Plants, 2021, 7, 598-607.	9.3	17
86	Sensitivity of tree growth to a high CO2 environment: consequences for interpreting the characteristics of fossil woods from ancient â€˜greenhouseâ€™ worlds. Palaeogeography, Palaeoclimatology, Palaeoecology, 2002, 182, 15-29.	2.3	15
87	Climatic Controls on C4 Grassland Distributions During the Neogene: A Model-Data Comparison. Frontiers in Ecology and Evolution, 2018, 6, .	2.2	15
88	High silicon concentrations in grasses are linked to environmental conditions and not associated with C₄ photosynthesis. Global Change Biology, 2020, 26, 7128-7143.	9.5	15
89	Was low atmospheric CO₂a limiting factor in the origin of agriculture?. Environmental Archaeology, 2010, 15, 113-123.	1.2	14
90	Land degradation in South Africa: Justice and climate change in tension. People and Nature, 2021, 3, 978-989.	3.7	14

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91	Preference for C₄ shade grasses increases hatchling performance in the butterfly, <i>Bicyclus safitza</i>. Ecology and Evolution, 2016, 6, 5246-5255.	1.9	13
92	Yield responses of wild C₃ and C₄ crop progenitors to subambient CO₂: a test for the role of CO₂ limitation in the origin of agriculture. Global Change Biology, 2017, 23, 380-393.	9.5	13
93	Frequent fires prime plant developmental responses to burning. Proceedings of the Royal Society B: Biological Sciences, 2019, 286, 20191315.	2.6	13
94	Low dispersal and ploidy differences in a grass maintain photosynthetic diversity despite gene flow and habitat overlap. Molecular Ecology, 2021, 30, 2116-2130.	3.9	12
95	A process-based model of conifer forest structure and function with special emphasis on leaf lifespan. Global Biogeochemical Cycles, 2002, 16, 44-1-44-23.	4.9	11
96	Nutrient sink limitation constrains growth in two barley species with contrasting growth strategies. Plant Direct, 2018, 2, e00094.	1.9	11
97	C 4 savanna grasses fail to maintain assimilation in drying soil under low CO 2 compared with C 3 trees despite lower leaf water demand. Functional Ecology, 2019, 33, 388-398.	3.6	10
98	Bundle sheath chloroplast volume can house sufficient Rubisco to avoid limiting C4 photosynthesis during chilling. Journal of Experimental Botany, 2019, 70, 357-365.	4.8	9
99	Large seeds provide an intrinsic growth advantage that depends on leaf traits and root allocation. Functional Ecology, 2021, 35, 2168-2178.	3.6	9
100	Forest regeneration on European sheep pasture is an economically viable climate change mitigation strategy. Environmental Research Letters, 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>. Ecology and Evolution, 2022, 12, e8563.	1.9	9
102	Differential freezing resistance and photoprotection in C3 and C4 eudicots and grasses. Journal of Experimental Botany, 2013, 64, 2183-2191.	4.8	8
103	A theoretical analysis of how plant growth is limited by carbon allocation strategies and respiration. In Silico Plants, 2019, 1, .	1.9	8
104	Disparities among crop species in the evolution of growth rates: the role of distinct origins and domestication histories. New Phytologist, 2022, 233, 995-1010.	7.3	8
105	Savanna fire regimes depend on grass trait diversity. Trends in Ecology and Evolution, 2022, 37, 749-758.	8.7	8
106	Traits explain sorting of C₄ grasses along a global precipitation gradient. Ecology and Evolution, 2021, 11, 2669-2680.	1.9	7
107	Phylogeny and ecological processes influence grass coexistence at different spatial scales within the steppe biome. Oecologia, 2019, 191, 25-38.	2.0	6
108	Reduced plant water status under sub-ambient<i>p</i>CO₂limits plant productivity in the wild progenitors of C₃and C₄cereals. Annals of Botany, 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. Quaternary Science Reviews, 2022, 288, 107578.	3.0	4
110	Chapter 17 The Geologic History of C4 Plants. Advances in Photosynthesis and Respiration, 2010, , 339-357.	1.0	3
111	Editorial: Revisiting the Biome Concept With A Functional Lens. Frontiers in Ecology and Evolution, 2019, 7, .	2.2	3
112	The morphogenesis of fast growth in plants. New Phytologist, 2020, 228, 1306-1315.	7.3	3
113	Upregulation of C₄ characteristics does not consistently improve photosynthetic performance in intraspecific hybrids of a grass. Plant, Cell and Environment, 2022, 45, 1398-1411.	5.7	3