Rowan F Sage

List of Publications by Citations

129 papers	12,111 citations	57 h-index	109 g-index
152 ext. papers	14,068 ext. citations	6.5 avg, IF	6.91 L-index

#	Paper	IF	Citations
129	The evolution of C photosynthesis. *New Phytologist*, **2004**, 161, 341-370	9.8	916
128	The temperature response of C(3) and C(4) photosynthesis. *Plant, Cell and Environment*, **2007**, 30, 1086-1106	8.4	711
127	The origins of C4 grasslands: integrating evolutionary and ecosystem science. *Science*, **2010**, 328, 587-91	33.3	698
126	Acclimation of Photosynthesis to Elevated CO(2) in Five C(3) Species. *Plant Physiology*, **1989**, 89, 590-6	6.6	556
125	Acclimation of photosynthesis to increasing atmospheric CO2: The gas exchange perspective. *Photosynthesis Research*, **1994**, 39, 351-68	3.7	516
124	Photorespiration and the evolution of C4 photosynthesis. *Annual Review of Plant Biology*, **2012**, 63, 19-47	30.7	455
123	Climate change and the evolution of C(4) photosynthesis. *Trends in Ecology and Evolution*, **1991**, 6, 95-9	10.9	426
122	The C(4) plant lineages of planet Earth. *Journal of Experimental Botany*, **2011**, 62, 3155-69	7	390
121	The Nitrogen Use Efficiency of C(3) and C(4) Plants: II. Leaf Nitrogen Effects on the Gas Exchange Characteristics of Chenopodium album (L.) and Amaranthus retroflexus (L.). *Plant Physiology*, **1987**, 84, 959-63	6.6	265
120	The Effect of Temperature on the Occurrence of O(2) and CO(2) Insensitive Photosynthesis in Field Grown Plants. *Plant Physiology*, **1987**, 84, 658-64	6.6	257
119	Variation in the k(cat) of Rubisco in C(3) and C(4) plants and some implications for photosynthetic performance at high and low temperature. *Journal of Experimental Botany*, **2002**, 53, 609-20	7	240
118	The Nitrogen Use Efficiency of C(3) and C(4) Plants : III. Leaf Nitrogen Effects on the Activity of Carboxylating Enzymes in Chenopodium album (L.) and Amaranthus retroflexus (L.). *Plant Physiology*, **1987**, 85, 355-9	6.6	221
117	Rubisco, Rubisco activase, and global climate change. *Journal of Experimental Botany*, **2008**, 59, 1581-95	7	180
116	Exploiting the engine of C(4) photosynthesis. *Journal of Experimental Botany*, **2011**, 62, 2989-3000	7	179
115	The Biogeography of C4 Photosynthesis: Patterns and Controlling Factors **1999**, 313-I		171
114	Quo vadis C(4)? An ecophysiological perspective on global change and the future of C(4) plants. *Photosynthesis Research*, **2003**, 77, 209-25	3.7	165
113	C3 plants enhance rates of photosynthesis by reassimilating photorespired and respired CO2. *Plant, Cell and Environment*, **2013**, 36, 200-12	8.4	159

112	Was low atmospheric CO2 during the Pleistocene a limiting factor for the origin of agriculture?. *Global Change Biology*, **1995**, 1, 93-106	11.4	153
111	The Nitrogen Use Efficiency of C(3) and C(4) Plants: I. Leaf Nitrogen, Growth, and Biomass Partitioning in Chenopodium album (L.) and Amaranthus retroflexus (L.). *Plant Physiology*, **1987**, 84, 954-8	6.6	152
110	Effects of low atmospheric CO(2) on plants: more than a thing of the past. *Trends in Plant Science*, **2001**, 6, 18-24	13.1	150
109	Dissecting Molecular Evolution in the Highly Diverse Plant Clade Caryophyllales Using Transcriptome Sequencing. *Molecular Biology and Evolution*, **2015**, 32, 2001-14	8.3	149
108	A Model Describing the Regulation of Ribulose-1,5-Bisphosphate Carboxylase, Electron Transport, and Triose Phosphate Use in Response to Light Intensity and CO(2) in C(3) Plants. *Plant Physiology*, **1990**, 94, 1728-34	6.6	149
107	The functional anatomy of rice leaves: implications for refixation of photorespiratory CO2 and efforts to engineer C4 photosynthesis into rice. *Plant and Cell Physiology*, **2009**, 50, 756-72	4.9	147
106	Is C4 photosynthesis less phenotypically plastic than C3 photosynthesis?. *Journal of Experimental Botany*, **2006**, 57, 303-17	7	143
105	Evaluating methods for isolating total RNA and predicting the success of sequencing phylogenetically diverse plant transcriptomes. *PLoS ONE*, **2012**, 7, e50226	3.7	142
104	Diversity of Kranz anatomy and biochemistry in C4 eudicots. *American Journal of Botany*, **2007**, 94, 362-81	1.7	140
103	A roadmap for research on crassulacean acid metabolism (CAM) to enhance sustainable food and bioenergy production in a hotter, drier world. *New Phytologist*, **2015**, 207, 491-504	9.8	134
102	Elevated growth temperatures reduce the carbon gain of black spruce [Picea mariana (Mill.) B.S.P.]. *Global Change Biology*, **2008**, 14, 624-636	11.4	130
101	The in-vivo response of the ribulose-1,5-bisphosphate carboxylase activation state and the pool sizes of photosynthetic metabolites to elevated CO2 inPhaseolus vulgaris L. *Planta*, **1988**, 174, 407-16	4.7	130
100	The regulation of Rubisco activity in response to variation in temperature and atmospheric CO2 partial pressure in sweet potato. *Plant Physiology*, **2005**, 139, 979-90	6.6	129
99	C4 photosynthesis at low temperature. A study using transgenic plants with reduced amounts of Rubisco. *Plant Physiology*, **2003**, 132, 1577-85	6.6	117
98	Thermal acclimation of photosynthesis in black spruce [Picea mariana (Mill.) B.S.P.]. *Plant, Cell and Environment*, **2008**, 31, 1250-62	8.4	110
97	Lineage-specific gene radiations underlie the evolution of novel betalain pigmentation in Caryophyllales. *New Phytologist*, **2015**, 207, 1170-80	9.8	104
96	Regulation of photosynthetic electron-transport in Phaseolus vulgaris L., as determined by room-temperature chlorophyll a fluorescence. *Planta*, **1988**, 176, 415-24	4.7	101
95	Regulation of Ribulose-1,5-Bisphosphate Carboxylase Activity in Response to Light Intensity and CO(2) in the C(3) Annuals Chenopodium album L. and Phaseolus vulgaris L. *Plant Physiology*, **1990**, 94, 1735-42	6.6	100

94	Complex evolutionary transitions and the significance of c(3)-c(4) intermediate forms of photosynthesis in Molluginaceae. *Evolution; International Journal of Organic Evolution*, **2011**, 65, 643-60	3.8	97
93	Plants increase CO uptake by assimilating nitrogen via the photorespiratory pathway. *Nature Plants* , **2018**, 4, 46-54	11.5	97
92	Cleome, a genus closely related to Arabidopsis, contains species spanning a developmental progression from C(3) to C(4) photosynthesis. *Plant Journal*, **2007**, 51, 886-96	6.9	96
91	Manipulating photorespiration to increase plant productivity: recent advances and perspectives for crop improvement. *Journal of Experimental Botany*, **2016**, 67, 2977-88	7	90
90	The effect of high temperature stress on male and female reproduction in plants. *Field Crops Research*, **2015**, 182, 30-42	5.5	89
89	A portrait of the C4 photosynthetic family on the 50th anniversary of its discovery: species number, evolutionary lineages, and Hall of Fame. *Journal of Experimental Botany*, **2016**, 67, 4039-56	7	89
88	Interactions between the effects of atmospheric CO2 content and P nutrition on photosynthesis in white lupin (Lupinus albus L.). *Plant, Cell and Environment*, **2006**, 29, 844-53	8.4	87
87	C(4) eudicots are not younger than C(4) monocots. *Journal of Experimental Botany*, **2011**, 62, 3171-81	7	86
86	From proto-Kranz to C4 Kranz: building the bridge to C4 photosynthesis. *Journal of Experimental Botany*, **2014**, 65, 3341-56	7	84
85	Functional leaf anatomy of plants with crassulacean acid metabolism. *Functional Plant Biology*, **2005**, 32, 409-419	2.7	76
84	Temperature response of photosynthesis in transgenic rice transformed with SsenseSor SantisenseS rbcS. *Plant and Cell Physiology*, **2007**, 48, 1472-83	4.9	74
83	Characterization of C□-C□ intermediate species in the genus Heliotropium L. (Boraginaceae): anatomy, ultrastructure and enzyme activity. *Plant, Cell and Environment*, **2011**, 34, 1723-36	8.4	72
82	A Comparison of Dark Respiration between C(3) and C(4) Plants. *Plant Physiology*, **1992**, 100, 191-8	6.6	69
81	The functional significance of C3-C4 intermediate traits in Heliotropium L. (Boraginaceae): gas exchange perspectives. *Plant, Cell and Environment*, **2007**, 30, 1337-45	8.4	65
80	The taxonomic distribution of C4 photosynthesis in Amaranthaceae sensu stricto. *American Journal of Botany*, **2007**, 94, 1992-2003	2.7	64
79	Initial events during the evolution of C4 photosynthesis in C3 species of Flaveria. *Plant Physiology*, **2013**, 163, 1266-76	6.6	63
78	Functional constraints of CAM leaf anatomy: tight cell packing is associated with increased CAM function across a gradient of CAM expression. *Journal of Experimental Botany*, **2008**, 59, 1841-50	7	62
77	Perspectives for a better understanding of the metabolic integration of photorespiration within a complex plant primary metabolism network. *Journal of Experimental Botany*, **2016**, 67, 3015-26	7	62

76	The sensitivity of photosynthesis to O and CO concentration identifies strong Rubisco control above the thermal optimum. *New Phytologist*, **2017**, 213, 1036-1051	9.8	61
75	Shared origins of a key enzyme during the evolution of C4 and CAM metabolism. *Journal of Experimental Botany*, **2014**, 65, 3609-21	7	59
74	Water-use efficiency and nitrogen-use efficiency of C(3) -C(4) intermediate species of Flaveria Juss. (Asteraceae). *Plant, Cell and Environment*, **2011**, 34, 1415-30	8.4	59
73	Global change biology: A primer. *Global Change Biology*, **2020**, 26, 3-30	11.4	59
72	Evolution of photorespiration from cyanobacteria to land plants, considering protein phylogenies and acquisition of carbon concentrating mechanisms. *Journal of Experimental Botany*, **2016**, 67, 2963-76	7	57
71	The response of the high altitude C(4) grass Muhlenbergia montana (Nutt.) A.S. Hitchc. to long- and short-term chilling. *Journal of Experimental Botany*, **2001**, 52, 829-38	7	54
70	Are crassulacean acid metabolism and C4 photosynthesis incompatible?. *Functional Plant Biology*, **2002**, 29, 775-785	2.7	51
69	Photosynthetic diversity meets biodiversity: the C4 plant example. *Journal of Plant Physiology*, **2015** , 172, 104-19	3.6	46
68	The Physiological Ecology of C4 Photosynthesis. *Advances in Photosynthesis and Respiration*, **2000**, 497-532	17	46
67	The occurrence of C(2) photosynthesis in Euphorbia subgenus Chamaesyce (Euphorbiaceae). *Journal of Experimental Botany*, **2011**, 62, 3183-95	7	43
66	C(4) photosynthesis in terrestrial plants does not require Kranz anatomy. *Trends in Plant Science*, **2002**, 7, 283-5	13.1	42
65	Multiple photosynthetic transitions, polyploidy, and lateral gene transfer in the grass subtribe Neurachninae. *Journal of Experimental Botany*, **2012**, 63, 6297-308	7	40
64	The temperature response of photosynthesis in tobacco with reduced amounts of Rubisco. *Plant, Cell and Environment*, **2008**, 31, 407-18	8.4	40
63	The Greening of the Sahara: Past Changes and Future Implications. *One Earth*, **2020**, 2, 235-250	8.1	39
62	Chilling and frost tolerance in Miscanthus and Saccharum genotypes bred for cool temperate climates. *Journal of Experimental Botany*, **2014**, 65, 3749-58	7	38
61	Microsite characteristics of Muhlenbergia richardsonis (Trin.) Rydb., an alpine C grass from the White Mountains, California. *Oecologia*, **2002**, 132, 501-508	2.9	37
60	C4 bioenergy crops for cool climates, with special emphasis on perennial C4 grasses. *Journal of Experimental Botany*, **2015**, 66, 4195-212	7	36
59	Evolution of leaf anatomy and photosynthetic pathways in Portulacaceae. *American Journal of Botany*, **2013**, 100, 2388-402	2.7	36

58	C3-C4 intermediacy in grasses: organelle enrichment and distribution, glycine decarboxylase expression, and the rise of C2 photosynthesis. *Journal of Experimental Botany*, **2016**, 67, 3065-78	7	36
57	How terrestrial organisms sense, signal, and respond to carbon dioxide. *Integrative and Comparative Biology*, **2002**, 42, 469-80	2.8	35
56	Winter cold-tolerance thresholds in field-grown Miscanthus hybrid rhizomes. *Journal of Experimental Botany*, **2015**, 66, 4415-25	7	34
55	Winter cold tolerance and the geographic range separation of Bromus tectorum and Bromus rubens, two severe invasive species in North America. *Global Change Biology*, **2012**, 18, 3654-3663	11.4	34
54	Phylogeny of Sesuvioideae (Aizoaceae) Biogeography, leaf anatomy and the evolution of C4 photosynthesis. *Perspectives in Plant Ecology, Evolution and Systematics*, **2015**, 17, 116-130	3	32
53	Photosynthetic pathway alters hydraulic structure and function in woody plants. *Oecologia*, **2004**, 139, 214-23	2.9	32
52	Fine Mapping of , a Quantitative Trait Locus for Flag Leaf Nitrogen Content, Stomatal Conductance and Photosynthesis in Rice. *Frontiers in Plant Science*, **2017**, 8, 60	6.2	31
51	Evolutionary History of Blepharis (Acanthaceae) and the Origin of C4 Photosynthesis in Section Acanthodium. *International Journal of Plant Sciences*, **2015**, 176, 770-790	2.6	31
50	Effects of low atmospheric CO2 and elevated temperature during growth on the gas exchange responses of C3, C3-C4 intermediate, and C4 species from three evolutionary lineages of C4 photosynthesis. *Oecologia*, **2012**, 169, 341-52	2.9	31
49	Photosynthetic pathway influences xylem structure and function in Flaveria (Asteraceae). *Plant, Cell and Environment*, **2008**, 31, 1363-76	8.4	31
48	Some like it hot: the physiological ecology of C plant evolution. *Oecologia*, **2018**, 187, 941-966	2.9	30
47	Evolutionary physiology: the extent of C4 and CAM photosynthesis in the genera Anacampseros and Grahamia of the Portulacaceae. *Journal of Experimental Botany*, **2008**, 59, 1735-42	7	30
46	The activation state of Rubisco directly limits photosynthesis at low CO(2) and low O(2) partial pressures. *Photosynthesis Research*, **2002**, 71, 241-50	3.7	30
45	Kudzu [Pueraria montana (Lour.) Merr. Variety lobata]: A new source of carbohydrate for bioethanol production. *Biomass and Bioenergy*, **2009**, 33, 57-61	5.3	29
44	RNA-Seq based phylogeny recapitulates previous phylogeny of the genus Flaveria (Asteraceae) with some modifications. *BMC Evolutionary Biology*, **2015**, 15, 116	3	28
43	Mesophyll cells of C4 plants have fewer chloroplasts than those of closely related C3 plants. *Plant, Cell and Environment*, **2014**, 37, 2587-600	8.4	28
42	Phylogeny and photosynthetic pathway distribution in Anticharis Endl. (Scrophulariaceae). *Journal of Experimental Botany*, **2012**, 63, 5645-58	7	28
41	A portrait of the C4 photosynthetic family on the 50th anniversary of its discovery: species number, evolutionary lineages, and Hall of Fame. *Journal of Experimental Botany*, **2017**, 68, 4039-4056	7	25

40	Why are there no C forests?. *Journal of Plant Physiology*, **2016**, 203, 55-68	3.6	21
39	Mesophyll Chloroplast Investment in C3, C4 and C2 Species of the Genus Flaveria. *Plant and Cell Physiology*, **2016**, 57, 904-18	4.9	20
38	High-yielding rice Takanari has superior photosynthetic response to a commercial rice Koshihikari under fluctuating light. *Journal of Experimental Botany*, **2019**, 70, 5287-5297	7	20
37	Stopping the leaks: new insights into C4 photosynthesis at low light. *Plant, Cell and Environment*, **2014**, 37, 1037-41	8.4	20
36	Leaf anatomy, gas exchange and photosynthetic enzyme activity in Flaveria kochiana. *Functional Plant Biology*, **2007**, 34, 118-129	2.7	20
35	Facultative crassulacean acid metabolism in a C3-C4 intermediate. *Journal of Experimental Botany*, **2019**, 70, 6571-6579	7	18
34	Improved experimental protocols to evaluate cold tolerance thresholds in Miscanthus and switchgrass rhizomes. *GCB Bioenergy*, **2016**, 8, 257-268	5.6	18
33	Sub-zero cold tolerance of Spartina pectinata (prairie cordgrass) and Miscanthus giganteus: candidate bioenergy crops for cool temperate climates. *Journal of Experimental Botany*, **2015**, 66, 4403-13	7	17
32	Climate and the distribution of C4 grasses along the Atlantic and Pacific coasts of North America. *Canadian Journal of Botany*, **2001**, 79, 474-486		17
31	Comparative studies of C3 and C4 Atriplex hybrids in the genomics era: physiological assessments. *Journal of Experimental Botany*, **2014**, 65, 3637-47	7	16
30	On the disintegration of Molluginaceae: a new genus and family (Kewa, Kewaceae) segregated from Hypertelis, and placement of Macarthuria in Macarthuriaceae. *Phytotaxa*, **2014**, 181, 238	0.7	16
29	Australia lacks stem succulents but is it depauperate in plants with crassulacean acid metabolism (CAM)?. *Current Opinion in Plant Biology*, **2016**, 31, 109-17	9.9	15
28	C4 grasses in boreal fens: their occurrence in relation to microsite characteristics. *Oecologia*, **2003**, 137, 330-7	2.9	14
27	Tracking the evolutionary rise of C4 metabolism. *Journal of Experimental Botany*, **2016**, 67, 2919-22	7	13
26	Passive CO2 concentration in higher plants. *Current Opinion in Plant Biology*, **2016**, 31, 58-65	9.9	13
25	Photosynthesis in Sugarcane **2013**, 121-154		12
24	Gisekia (Gisekiaceae): phylogenetic relationships, biogeography, and ecophysiology of a poorly known C lineage in the Caryophyllales. *American Journal of Botany*, **2014**, 101, 499-509	2.7	10
23	Tolerance of subzero winter cold in kudzu (Pueraria montana var. lobata). *Oecologia*, **2018**, 187, 839-849	2.9	10

22	Leaf photosynthetic rate and mesophyll cell anatomy changes during ontogenesis in backcrossed indica Japonica rice inbred lines. *Photosynthesis Research*, **2017**, 134, 27-38	3.7	9
21	Effect of atmospheric CO2 enrichment on rubisco content in herbaceous species from high and low altitude. *Acta Oecologica*, **1997**, 18, 183-192	1.7	9
20	Photosynthetic efficiency and carbon concentration in terrestrial plants: the C4 and CAM solutions. *Journal of Experimental Botany*, **2014**, 65, 3323-5	7	8
19	The effect of carbon and nutrient loading during nursery culture on the growth of black spruce seedlings: a six-year field study. *New Forests*, **2007**, 34, 307-312	2.6	8
18	Estimation of the whole-plant CO2 compensation point of tobacco (Nicotiana tabacum L.). *Global Change Biology*, **2005**, 11, 050922094851001-???	11.4	8
17	Light-dependent modulation of ribulose-1,5-bisphosphate carboxylase/oxygenase activity in the genus Phaseolus. *Photosynthesis Research*, **1993**, 35, 219-26	3.7	8
16	Evolution of RLSB, a nuclear-encoded S1 domain RNA binding protein associated with post-transcriptional regulation of plastid-encoded rbcL mRNA in vascular plants. *BMC Evolutionary Biology*, **2016**, 16, 141	3	8
15	The Evolutionary Origin of C Photosynthesis in the Grass Subtribe Neurachninae. *Plant Physiology*, **2020**, 182, 566-583	6.6	6
14	Mind the gap: the evolutionary engagement of the C metabolic cycle in support of net carbon assimilation. *Current Opinion in Plant Biology*, **2019**, 49, 27-34	9.9	5
13	Plants and bioenergy. *Journal of Experimental Botany*, **2015**, 66, 4093-5	7	4
12	Molecular Phylogeny ofPectis(Tageteae, Asteraceae), a C4Genus of the Neotropics, and its Sister GenusPorophyllum. *Lundellia*, **2016**, 19, 6-38	0.6	4
11	Photosynthesis: Mining grasses for a better Rubisco. *Nature Plants*, **2016**, 2, 16192	11.5	3
10	Photosynthetic pathway of grass fossils from the upper Miocene Dove Spring Formation, Mojave Desert, California. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **2018**, 490, 131-140	2.9	2
9	Variation in leaf anatomical traits relates to the evolution of C4 photosynthesis in Tribuloideae (Zygophyllaceae). *Perspectives in Plant Ecology, Evolution and Systematics*, **2019**, 39, 125463	3	2
8	The crucial roles of mitochondria in supporting C photosynthesis. *New Phytologist*, **2021**,	9.8	2
7	Comparative photosynthetic responses in upland and lowland sugarcane cultivars grown in cool and warm conditions. *Revista Brasileira De Botanica*, **2017**, 40, 829-839	1.2	2
6	Evolutionary Convergence of C Photosynthesis: A Case Study in the Nyctaginaceae. *Frontiers in Plant Science*, **2020**, 11, 578739	6.2	2
5	The coordination of major events in C photosynthesis evolution in the genus Flaveria. *Scientific Reports*, **2021**, 11, 15618	4.9	2

4	Russ Monson and the evolution of C photosynthesis. *Oecologia*, **2021**, 197, 823-840	2.9	1
3	Reproductive heat tolerance in a Mojave Desert annual plant, Trianthema portulacastrum. *American Journal of Botany*, **2018**, 105, 2018-2024	2.7	1
2	Chapter 8 Terrestrial CO2-Concentrating Mechanisms in a High CO2 World. *Advances in Photosynthesis and Respiration*, **2021**, 193-250	1.7	0
1	Elevated efficiency of C3 photosynthesis in bamboo grasses: A possible consequence of enhanced refixation of photorespired CO2. *GCB Bioenergy*, **2021**, 13, 941-954	5.6	