Annette Cowie

List of Publications by Year
in descending order

135 papers	13,028 citations	41344 49 h-index	23533 111 g-index
142 all docs	142 docs citations	142 times ranked	12715 citing authors

#	Article	IF	Citations
1	Effects of biochar from slow pyrolysis of papermill waste on agronomic performance and soil fertility. Plant and Soil, 2010, 327, 235-246.	3.7	1,376
2	Biophysical and economic limits to negative CO2 emissions. Nature Climate Change, 2016, 6, 42-50.	18.8	973
3	An investigation into the reactions of biochar in soil. Soil Research, 2010, 48, 501.	1.1	840
4	Characterisation and evaluation of biochars for their application as a soil amendment. Soil Research, 2010, 48, 516.	1.1	763
5	Energy- and greenhouse gas-based LCA of biofuel and bioenergy systems: Key issues, ranges and recommendations. Resources, Conservation and Recycling, 2009, 53, 434-447.	10.8	752
6	Influence of Biochars on Nitrous Oxide Emission and Nitrogen Leaching from Two Contrasting Soils. Journal of Environmental Quality, 2010, 39, 1224-1235.	2.0	630
7	Biochar Carbon Stability in a Clayey Soil As a Function of Feedstock and Pyrolysis Temperature. Environmental Science & Technology, 2012, 46, 11770-11778.	10.0	456
8	Mixed-species plantations of Eucalyptus with nitrogen-fixing trees: A review. Forest Ecology and Management, 2006, 233, 211-230.	3.2	417
9	Land in balance: The scientific conceptual framework for Land Degradation Neutrality. Environmental Science and Policy, 2018, 79, 25-35.	4.9	403
10	How biochar works, and when it doesn't: A review of mechanisms controlling soil and plant responses to biochar. GCB Bioenergy, 2021, 13, 1731-1764.	5.6	286
11	Biochar in climate change mitigation. Nature Geoscience, 2021, 14, 883-892.	12.9	263
12	Key issues and options in accounting for carbon sequestration and temporary storage in life cycle assessment and carbon footprinting. International Journal of Life Cycle Assessment, 2013, 18, 230-240.	4.7	257
13	Long-term influence of biochar on native organic carbon mineralisation in a low-carbon clayey soil. Scientific Reports, 2014, 4, 3687.	3.3	244
14	Net-zero emissions targets are vague: three ways to fix. Nature, 2021, 591, 365-368.	27.8	240
15	Biochar built soil carbon over a decade by stabilizing rhizodeposits. Nature Climate Change, 2017, 7, 371-376.	18.8	232
16	Which practices coâ€deliver food security, climate change mitigation and adaptation, and combat land degradation and desertification?. Global Change Biology, 2020, 26, 1532-1575.	9.5	164
17	Biochar lowers ammonia emission and improves nitrogen retention in poultry litter composting. Waste Management, 2017, 61, 129-137.	7.4	155
18	Towards an integrated global framework to assess the impacts of land use and management change on soil carbon: current capability and future vision. Global Change Biology, 2012, 18, 2089-2101.	9.5	150

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19	High resolution mapping of soil organic carbon stocks using remote sensing variables in the semi-arid rangelands of eastern Australia. Science of the Total Environment, 2018, 630, 367-378.	8.0	139
20	On the success and failure of mixed-species tree plantations: lessons learned from a model system of Eucalyptus globulus and Acacia mearnsii. Forest Ecology and Management, 2005, 209, 147-155.	3.2	124
21	Biochar increases nitrogen retention and lowers greenhouse gas emissions when added to composting poultry litter. Waste Management, 2017, 61, 138-149.	7.4	119
22	Agricultural management practices impacted carbon and nutrient concentrations in soil aggregates, with minimal influence on aggregate stability and total carbon and nutrient stocks in contrasting soils. Soil and Tillage Research, 2018, 178, 209-223.	5.6	118
23	Estimating soil organic carbon stocks using different modelling techniques in the semi-arid rangelands of eastern Australia. Ecological Indicators, 2018, 88, 425-438.	6.3	114
24	Towards sustainable land management in the drylands: Scientific connections in monitoring and assessing dryland degradation, climate change and biodiversity. Land Degradation and Development, 2011, 22, 248-260.	3.9	105
25	Developing general allometric relationships for regional estimates of carbon sequestrationâ€"an example using Eucalyptus pilularis from seven contrasting sites. Forest Ecology and Management, 2005, 204, 115-129.	3.2	98
26	Enhanced biological N2 fixation and yield of faba bean (Vicia faba L.) in an acid soil following biochar addition: dissection of causal mechanisms. Plant and Soil, 2015, 395, 7-20.	3.7	97
27	Carbon allocation in a mixed-species plantation of Eucalyptus globulus and Acacia mearnsii. Forest Ecology and Management, 2006, 233, 275-284.	3.2	96
28	Management swing potential for bioenergy crops. GCB Bioenergy, 2013, 5, 623-638.	5.6	94
29	Oil mallee biochar improves soil structural propertiesâ€"A study with x-ray micro-CT. Agriculture, Ecosystems and Environment, 2014, 191, 142-149.	5.3	94
30	Carbon and nutrient mineralisation dynamics in aggregate-size classes from different tillage systems after input of canola and wheat residues. Soil Biology and Biochemistry, 2018, 116, 22-38.	8.8	88
31	Land Degradation Neutrality: Concept development, practical applications and assessment. Journal of Environmental Management, 2017, 195, 16-24.	7.8	85
32	Impact of agricultural management practices on the nutrient supply potential of soil organic matter under long-term farming systems. Soil and Tillage Research, 2018, 175, 71-81.	5.6	80
33	Nutrient cycling in a mixed-species plantation of Eucalyptus globulus and Acacia mearnsii. Canadian Journal of Forest Research, 2005, 35, 2942-2950.	1.7	77
34	The decomposition of wood products in landfills in Sydney, Australia. Waste Management, 2008, 28, 2344-2354.	7.4	77
35	Plant-biochar interactions drive the negative priming of soil organic carbon in an annual ryegrass field system. Soil Biology and Biochemistry, 2015, 90, 111-121.	8.8	75
36	Biochar use for climate-change mitigation in rice cropping systems. Journal of Cleaner Production, 2016, 116, 61-70.	9.3	73

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37	Carbon myopia: The urgent need for integrated social, economic and environmental action in the livestock sector. Global Change Biology, 2021, 27, 5726-5761.	9.5	73
38	Assessing nitrogen fixation in mixed- and single-species plantations of Eucalyptus globulus and Acacia mearnsii. Tree Physiology, 2007, 27, 1319-1328.	3.1	69
39	Bioenergy and land use changeâ€"state of the art. Wiley Interdisciplinary Reviews: Energy and Environment, 2013, 2, 282-303.	4.1	68
40	Does Soil Carbon Loss in Biomass Production Systems Negate the Greenhouse Benefits of Bioenergy?. Mitigation and Adaptation Strategies for Global Change, 2006, 11, 979-1002.	2.1	65
41	Potential synergies between existing multilateral environmental agreements in the implementation of land use, land-use change and forestry activities. Environmental Science and Policy, 2007, 10, 335-352.	4.9	65
42	Pyrolysing poultry litter reduces N2O and CO2 fluxes. Science of the Total Environment, 2013, 465, 279-287.	8.0	57
43	The Use of Life Cycle Assessment in the Support of Robust (Climate) Policy Making: Comment on â€œUsing Attributional Life Cycle Assessment to Estimate Climateâ€Change Mitigation â€¦â€. Journal of Industrial Ecology, 2014, 18, 461-463.	5.5	57
44	Quantifying the climate effects of bioenergy â€" Choice of reference system. Renewable and Sustainable Energy Reviews, 2018, 81, 2271-2280.	16.4	54
45	Attributional life cycle assessment: is a land-use baseline necessary?. International Journal of Life Cycle Assessment, 2015, 20, 1364-1375.	4.7	53
46	Co-benefits and trade-offs of climate change mitigation actions and the Sustainable Development Goals. Sustainable Production and Consumption, 2021, 26, 805-813.	11.0	53
47	The initial lignin:nitrogen ratio of litter from above and below ground sources strongly and negatively influenced decay rates of slowly decomposing litter carbon pools. Soil Biology and Biochemistry, 2014, 77, 268-275.	8.8	52
48	The relationships between land uses, soil management practices, and soil carbon fractions in South Eastern Australia. Agriculture, Ecosystems and Environment, 2014, 197, 41-52.	5.3	52
49	Climate and soil properties limit the positive effects of land use reversion on carbon storage in Eastern Australia. Scientific Reports, 2015, 5, 17866.	3.3	52
50	Status and prospects for renewable energy using wood pellets from the southeastern United States. GCB Bioenergy, 2017, 9, 1296-1305.	5.6	52
51	Impact of carbon farming practices on soil carbon in northern New South Wales. Soil Research, 2013, 51, 707.	1.1	51
52	Sources of uncertainty for wheat yield projections under future climate are site-specific. Nature Food, 2020, 1, 720-728.	14.0	51
53	Applying a scienceâ€based systems perspective to dispel misconceptions about climate effects of forest bioenergy. GCB Bioenergy, 2021, 13, 1210-1231.	5.6	49
54	How necessary and feasible are reductions of methane emissions from livestock to support stringent temperature goals?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200452.	3.4	49

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55	Biochar as a Geoengineering Climate Solution: Hazard Identification and Risk Management. Critical Reviews in Environmental Science and Technology, 2012, 42, 225-250.	12.8	47
56	Climate-change and health effects of using rice husk for biochar-compost: Comparing three pyrolysis systems. Journal of Cleaner Production, 2017, 162, 260-272.	9.3	47
57	Carbon and nitrogen stocks in a native pasture and an adjacent 16-year-old Pinus radiata D. Don. plantation in Australia. Agriculture, Ecosystems and Environment, 2008, 124, 205-218.	5.3	46
58	Temperature sensitivity and priming of organic matter with different stabilities in a Vertisol with aged biochar. Soil Biology and Biochemistry, 2017, 115, 346-356.	8.8	44
59	Biochar addition in rice farming systems: Economic and energy benefits. Energy, 2017, 140, 415-425.	8.8	43
60	Quantifying the climate change effects of bioenergy systems: Comparison of 15 impact assessment methods. GCB Bioenergy, 2019, 11, 727-743.	5.6	43
61	Bioenergy for climate change mitigation: Scale and sustainability. GCB Bioenergy, 2021, 13, 1346-1371.	5.6	43
62	Effects of Different Biochars on Pinus elliottii Growth, N Use Efficiency, Soil N 2 O and CH 4 Emissions and C Storage in a Subtropical Area of China. Pedosphere, 2017, 27, 248-261.	4.0	42
63	Modelling and mapping soil organic carbon stocks under future climate change in south-eastern Australia. Geoderma, 2022, 405, 115442.	5.1	40
64	Nitrous oxide and methane emissions from soil are reduced following afforestation of pasture lands in three contrasting climatic zones. Soil Research, 2009, 47, 443.	1.1	38
65	Tillage history and crop residue input enhanced native carbon mineralisation and nutrient supply in contrasting soils under long-term farming systems. Soil and Tillage Research, 2019, 193, 71-84.	5.6	38
66	Land use for bioenergy: Synergies and trade-offs between sustainable development goals. Renewable and Sustainable Energy Reviews, 2022, 161, 112409.	16.4	38
67	Meta-analysis quantifying the potential of dietary additives and rumen modifiers for methane mitigation in ruminant production systems. Animal Nutrition, 2021, 7, 1219-1230.	5.1	36
68	Effects of Changing the Supply of Nitrogen and Phosphorus on Growth and Interactions between Eucalyptus globulus and Acacia mearnsiiin a Pot trial. Plant and Soil, 2006, 280, 267-277.	3.7	35
69	The climate effect of increased forest bioenergy use in Sweden: evaluation at different spatial and temporal scales. Wiley Interdisciplinary Reviews: Energy and Environment, 2016, 5, 351-369.	4.1	35
70	Balancing nutrient stoichiometry facilitates the fate of wheat residueâ€‘carbon in physically defined soil organic matter fractions. Geoderma, 2019, 354, 113883.	5.1	35
71	Offsetting methane emissions â€" An alternative to emission equivalence metrics. International Journal of Greenhouse Gas Control, 2013, 12, 419-429.	4.6	34
72	Options for including all lands in a future greenhouse gas accounting framework. Environmental Science and Policy, 2007, 10, 306-321.	4.9	33

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73	The decay of wood in landfills in contrasting climates in Australia. Waste Management, 2015, 41, 101-110.	7.4	32
74	Greenhouse gas accounting for inventory, emissions trading and life cycle assessment in the land-based sector: a review. Crop and Pasture Science, 2012, 63, 284.	1.5	31
75	Greenhouse Gas Balance of Native Forests in New South Wales, Australia. Forests, 2012, 3, 653-683.	2.1	28
76	Consequential Life Cycle Assessment: What, How, and Why?. , 2017, , 277-284.		27
77	Quantifying the Greenhouse Gas Reduction Benefits of Utilising Straw Biochar and Enriched Biochar. Energy Procedia, 2016, 97, 254-261.	1.8	26
78	The decay of engineered wood products and paper excavated from landfills in Australia. Waste Management, 2018, 74, 312-322.	7.4	26
79	Better estimates of soil carbon from geographical data: a revised global approach. Mitigation and Adaptation Strategies for Global Change, 2019, 24, 355-372.	2.1	26
80	Assessing resilience to underpin implementation of Land Degradation Neutrality: A case study in the rangelands of western New South Wales, Australia. Environmental Science and Policy, 2019, 100, 37-46.	4.9	26
81	Restoring Degraded Lands. Annual Review of Environment and Resources, 2021, 46, 569-599.	13.4	26
82	Tillage and nitrogen fertilization enhanced belowground carbon allocation and plant nitrogen uptake in a semi-arid canola cropâ€“soil system. Scientific Reports, 2017, 7, 10726.	3.3	25
83	Modelling soil organic carbon 2. Changes under a range of cropping and grazing farming systems in eastern Australia. Geoderma, 2016, 265, 164-175.	5.1	24
84	Carbon balances of bioenergy systems using biomass from forests managed with long rotations: bridging the gap between stand and landscape assessments. GCB Bioenergy, 2017, 9, 1238-1251.	5.6	24
85	Allocation of greenhouse gas production between wool and meat in the life cycle assessment of Australian sheep production. International Journal of Life Cycle Assessment, 2016, 21, 820-830.	4.7	23
86	The accumulation of rhizodeposits in organo-mineral fractions promoted biochar-induced negative priming of native soil organic carbon in Ferralsol. Soil Biology and Biochemistry, 2018, 118, 91-96.	8.8	23
87	Effects of waterlogging on chickpeas I. Influence of timing of waterlogging. Plant and Soil, 1996, 183, 97-103.	3.7	22
88	A comment to â€œLargeâ€scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutralâ€: Important insights beyond greenhouse gas accounting. GCB Bioenergy, 2012, 4, 617-619.	5.6	22
89	Climate change adaptation options in rainfed upland cropping systems in the wet tropics: A case study of smallholder farms in North-West Cambodia. Journal of Environmental Management, 2016, 182, 238-246.	7.8	22
90	Soil carbon market-based instrument pilot â€“ the sequestration of soil organic carbon for the purpose of obtaining carbon credits. Soil Research, 2021, 59, 12.	1.1	21

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91	Competition for the biomass resource: Greenhouse impacts and implications for renewable energy incentive schemes. Biomass and Bioenergy, 2007, 31, 601-607.	5.7	20
92	Is sustainability certification for biochar the answer to environmental risks?. Pesquisa Agropecuaria Brasileira, 2012, 47, 637-648.	0.9	20
93	Biochar in Soil for Climate Change Mitigation and Adaptation. Soil Biology, 2011, , 345-368.	0.8	19
94	Approaches to greenhouse gas accounting methods for biomass carbon. Biomass and Bioenergy, 2014, 60, 18-31.	5.7	18
95	Promoting co-benefits of carbon farming in Oceania: Applying and adapting approaches and metrics from existing market-based schemes. Ecosystem Services, 2019, 39, 100982.	5.4	18
96	Biochar research activities and their relation to development and environmental quality. A meta-analysis. Agronomy for Sustainable Development, 2017, 37, 1.	5.3	17
97	Biophysical and socioeconomic factors influencing soil carbon stocks: a global assessment. Mitigation and Adaptation Strategies for Global Change, 2020, 25, 1129-1148.	2.1	17
98	The modelling approach determines the carbon footprint of biofuels: The role of LCA in informing decision makers in government and industry. Cleaner Environmental Systems, 2021, 2, 100027.	4.2	17
99	Stock changes or fluxes? Resolving terminological confusion in the debate on land-use change and forestry. Climate Policy, 2006, 6, 161-179.	5.1	16
100	Mapping future soil carbon change and its uncertainty in croplands using simple surrogates of a complex farming system model. Geoderma, 2019, 337, 311-321.	5.1	16
101	Extreme fire weather is the major driver of severe bushfires in southeast Australia. Science Bulletin, 2022, 67, 655-664.	9.0	16
102	A global survey of stakeholder views and experiences for systems needed to effectively and efficiently govern sustainability of bioenergy. Wiley Interdisciplinary Reviews: Energy and Environment, 2016, 5, 89-118.	4.1	15
103	Bioenergy: Counting on Incentives. Science, 2010, 327, 1199-1200.	12.6	14
104	Giving Credit where Credit is Due. A Practical Method to Distinguish between Human and Natural Factors in Carbon Accounting. Climatic Change, 2004, 67, 417-436.	3.6	13
105	Effect of soil nitrate on the growth and nodulation of winter crop legumes. Australian Journal of Experimental Agriculture, 1990, 30, 651.	1.0	12
106	Soil carbon is only higher in the surface soil under minimum tillage in Vertosols and Chromosols of New South Wales North-West Slopes and Plains, Australia. Soil Research, 2013, 51, 680.	1.1	12
107	Climate change impacts on rainfed cropping production systems in the tropics and the case of smallholder farms in North-west Cambodia. Environment, Development and Sustainability, 2017, 19, 1631-1647.	5.0	12
108	The potential for sown tropical perennial grass pastures to improve soil organic carbon in the North-West Slopes and Plains of New South Wales. Soil Research, 2013, 51, 726.	1.1	12

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109	Effects of waterlogging on chickpeas II. Possible causes of decreased tolerance of waterlogging at flowering. Plant and Soil, 1996, 183, 105-115.	3.7	11
110	Determining the critical period for weed control in high-yielding cotton using common sunflower as a mimic weed. Weed Technology, 2019, 33, 800-807.	0.9	11
111	A regional interpretation of rules and good practice for greenhouse accounting: northern Australian savanna systems. Australian Journal of Botany, 2005, 53, 589.	0.6	11
112	Pyrolysis of invasive woody vegetation for energy and biochar has climate change mitigation potential. Science of the Total Environment, 2021, 770, 145278.	8.0	10
113	Residue incorporation mitigates tillageâ€induced loss of soil carbon in laboratory microcosms. Soil Use and Management, 2014, 30, 328-336.	4.9	9
114	Quantifying the climate effects of forest-based bioenergy. , 2019, , 399-418.		9
115	Climate change mitigation for Australian wheat production. Science of the Total Environment, 2020, 725, 138260.	8.0	9
116	Digital mapping of soil carbon sequestration potential with enhanced vegetation cover over New South Wales, Australia. Soil Use and Management, 2022, 38, 229-247.	4.9	8
117	On the validity of natural regeneration in determination of land-use baseline. International Journal of Life Cycle Assessment, 2016, 21, 448-450.	4.7	7
118	Improving understanding of carbon storage in wood in landfills: Evidence from reactor studies. Waste Management, 2019, 85, 341-350.	7.4	7
119	Stock changes or fluxes? Resolving terminological confusion in the debate on land-use change and forestry. Climate Policy, 2006, 6, 161-179.	5.1	7
120	Life cycle inventories for the Australian grains sector. Crop and Pasture Science, 2019, 70, 575.	1.5	6
121	Soil carbon and inferred net primary production in high- and low-intensity grazing systems on the New England Tableland, eastern Australia. Soil Research, 2016, 54, 824.	1.1	5
122	The value of using mimic weeds in competition experiments in irrigated cotton. Weed Technology, 2019, 33, 601-609.	0.9	5
123	Determining the critical period for grass control in high-yielding cotton using Japanese millet as a mimic weed. Weed Technology, 2020, 34, 292-300.	0.9	5
124	Bioenergy Systems, Soil Health and Climate Change. Soil Biology, 2011, , 369-397.	0.8	4
125	Carbon dynamics of paper, engineered wood products and bamboo in landfills: evidence from reactor studies. Carbon Balance and Management, 2018, 13, 27.	3.2	3
126	Determining the critical period for broadleaf weed control in high-yielding cotton using mungbean as a mimic weed. Weed Technology, 2020, 34, 689-698.	0.9	3

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127	Effect of soil nitrate on the growth and nodulation of lupins (Lupinus angustifolius and L. albus). Australian Journal of Experimental Agriculture, 1990, 30, 655.	1.0	3
128	Tillage and Crop Stubble Management and Soil Health in a Changing Climate. Soil Biology, 2011, , 181-206.	0.8	2
129	Soil health and climate change: a critical nexus. Burleigh Dodds Series in Agricultural Science, 2018, , 39-68.	0.2	2
130	What should we eat? Realistic solutions for reducing our food footprint. Sustainable Production and Consumption, 2022, 32, 541-549.	11.0	2
131	Selection of balancing ions for nutritional studies in nutrient culture experiments. Plant and Soil, 1990, 124, 87-90.	3.7	1
132	Policy institutions and forest carbon. Nature Climate Change, 2016, 6, 805-805.	18.8	1
133	Developing a multispecies weed competition model for high-yielding cotton. Weed Technology, 2021, 35, 202-209.	0.9	1
134	Land sector impacts of early climate action. Nature Sustainability, 0, , .	23.7	1
135	Consequential Life Cycle Assessment: What, Why and How?. , 2022, , .		0