Christopher A Gilligan

List of Publications by Year
in descending order

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141 papers	6,394 citations	71061 41 h-index	91828 69 g-index
145 all docs	145 docs citations	145 times ranked	5357 citing authors

#	Article	IF	Citations
1	The Consequence of Tree Pests and Diseases for Ecosystem Services. Science, 2013, 342, 1235773.	6.0	386
2	The persistent threat of emerging plant disease pandemics to global food security. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	261
3	Metapopulation dynamics of bubonic plague. Nature, 2000, 407, 903-906.	13.7	216
4	A modelling framework to assess the likely effectiveness of facemasks in combination with â€˜lock-downâ€™ in managing the COVID-19 pandemic. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200376.	1.0	206
5	Phenotypic and Genotypic Characterization of Race TKTTF of <i>Puccinia graminis</i> f. sp. <i>tritici</i> that Caused a Wheat Stem Rust Epidemic in Southern Ethiopia in 2013â€“14. Phytopathology, 2015, 105, 917-928.	1.1	202
6	Thirteen challenges in modelling plant diseases. Epidemics, 2015, 10, 6-10.	1.5	145
7	Modeling when, where, and how to manage a forest epidemic, motivated by sudden oak death in California. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5640-5645.	3.3	141
8	Epidemiological modeling of invasion in heterogeneous landscapes: spread of sudden oak death in California (1990â€“2030). Ecosphere, 2011, 2, art17.	1.0	140
9	Epidemiological Models for Invasion and Persistence of Pathogens. Annual Review of Phytopathology, 2008, 46, 385-418.	3.5	137
10	Sustainable agriculture and plant diseases: an epidemiological perspective. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363, 741-759.	1.8	125
11	Ecosystem transformation by emerging infectious disease: loss of large tanoak from California forests. Journal of Ecology, 2012, 100, 712-722.	1.9	111
12	Models of Fungicide Resistance Dynamics. Annual Review of Phytopathology, 2008, 46, 123-147.	3.5	102
13	Effect of bulk density on the spatial organisation of the fungus Rhizoctonia solani in soil. FEMS Microbiology Ecology, 2003, 44, 45-56.	1.3	100
14	Saprotrophic invasion by the soilâ€borne fungal plant pathogen Rhizoctonia solani and percolation thresholds. New Phytologist, 2000, 146, 535-544.	3.5	96
15	An epidemiological framework for disease management. Advances in Botanical Research, 2002, 38, 1-64.	0.5	95
16	Optimizing the control of disease infestations at the landscape scale. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 4984-4989.	3.3	90
17	Response of a deterministic epidemiological system to a stochastically varying environment. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 9067-9072.	3.3	89
18	Soil physics, fungal epidemiology and the spread of Rhizoctonia solani. New Phytologist, 2001, 151, 459-468.	3.5	88

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19	Quantifying airborne dispersal routes of pathogens over continents to safeguard global wheat supply. Nature Plants, 2017, 3, 780-786.	4.7	81
20	Landscape Epidemiology and Control of Pathogens with Cryptic and Long-Distance Dispersal: Sudden Oak Death in Northern Californian Forests. PLoS Computational Biology, 2012, 8, e1002328.	1.5	78
21	Disease control and its selection for damaging plant virus strains in vegetatively propagated staple food crops; a theoretical assessment. Proceedings of the Royal Society B: Biological Sciences, 2007, 274, 11-18.	1.2	76
22	Measures of Durability of Resistance. Phytopathology, 2003, 93, 616-625.	1.1	73
23	Detecting Presymptomatic Infection Is Necessary to Forecast Major Epidemics in the Earliest Stages of Infectious Disease Outbreaks. PLoS Computational Biology, 2016, 12, e1004836.	1.5	73
24	Economic incentives and mathematical models of disease. Environment and Development Economics, 2007, 12, 707-732.	1.3	71
25	Surveillance to Inform Control of Emerging Plant Diseases: An Epidemiological Perspective. Annual Review of Phytopathology, 2017, 55, 591-610.	3.5	71
26	Comparison of disease progress curves. New Phytologist, 1990, 115, 223-242.	3.5	67
27	Invasion and persistence of plant parasites in a spatially structured host population. Oikos, 2001, 94, 162-174.	1.2	67
28	Spatial heterogeneity in three species, plantâ€"parasiteâ€"hyperparasite, systems. Philosophical Transactions of the Royal Society B: Biological Sciences, 1998, 353, 543-557.	1.8	66
29	Empirical evidence of spatial thresholds to control invasion of fungal parasites and saprotrophs. New Phytologist, 2004, 163, 125-132.	3.5	61
30	Optimising and Communicating Options for the Control of Invasive Plant Disease When There Is Epidemiological Uncertainty. PLoS Computational Biology, 2015, 11, e1004211.	1.5	61
31	Riskâ€based management of invading plant disease. New Phytologist, 2017, 214, 1317-1329.	3.5	60
32	Extinction times for closed epidemics: the effects of host spatial structure. Ecology Letters, 2002, 5, 747-755.	3.0	58
33	Impact of scale on the effectiveness of disease control strategies for epidemics with cryptic infection in a dynamical landscape: an example for a crop disease. Journal of the Royal Society Interface, 2007, 4, 925-934.	1.5	56
34	Estimation of multiple transmission rates for epidemics in heterogeneous populations. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 20392-20397.	3.3	55
35	Bayesian inference for an emerging arboreal epidemic in the presence of control. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 6258-6262.	3.3	55
36	Pathogenic modification of plants enhances longâ€distance dispersal of nonpersistently transmitted viruses to new hosts. Ecology, 2019, 100, e02725.	1.5	55

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37	Estimating the Delay between Host Infection and Disease (Incubation Period) and Assessing Its Significance to the Epidemiology of Plant Diseases. PLoS ONE, 2014, 9, e86568.	1.1	52
38	Mathematical models are a powerful method to understand and control the spread of Huanglongbing. PeerJ, 2016, 4, e2642.	0.9	52
39	Predicting variability in biological control of a plantâ€"pathogen system using stochastic models. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 1743-1753.	1.2	50
40	Controlling disease spread on networks with incomplete knowledge. Physical Review E, 2004, 70, 066145.	0.8	49
41	Cost-Effective Control of Plant Disease When Epidemiological Knowledge Is Incomplete: Modelling Bahia Bark Scaling of Citrus. PLoS Computational Biology, 2014, 10, e1003753.	1.5	49
42	Viral Manipulation of Plant Stress Responses and Host Interactions With Insects. Advances in Virus Research, 2018, 102, 177-197.	0.9	48
43	Optimal Strategies for the Eradication of Asiatic Citrus Canker in Heterogeneous Host Landscapes. Phytopathology, 2009, 99, 1370-1376.	1.1	47
44	Time-Dependent Infectivity and Flexible Latent and Infectious Periods in Compartmental Models of Plant Disease. Phytopathology, 2012, 102, 365-380.	1.1	47
45	Large-Scale Fungicide Spray Heterogeneity and the Regional Spread of Resistant Pathogen Strains. Phytopathology, 2006, 96, 549-555.	1.1	46
46	Management of invading pathogens should be informed by epidemiology rather than administrative boundaries. Ecological Modelling, 2016, 324, 28-32.	1.2	46
47	Control fast or control smart: When should invading pathogens be controlled?. PLoS Computational Biology, 2018, 14, e1006014.	1.5	46
48	Soil structure and soil-borne diseases: using epidemiological concepts to scale from fungal spread to plant epidemics. European Journal of Soil Science, 2006, 57, 26-37.	1.8	45
49	Applying optimal control theory to complex epidemiological models to inform real-world disease management. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180284.	1.8	43
50	Population Dynamics of Plantâ€"Parasite Interactions: Thresholds for Invasion. Theoretical Population Biology, 2000, 57, 219-233.	0.5	40
51	Using conservation of pattern to estimate spatial parameters from a single snapshot. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 9155-9160.	3.3	40
52	Small-Scale Fungicide Spray Heterogeneity and the Coexistence of Resistant and Sensitive Pathogen Strains. Phytopathology, 2005, 95, 632-639.	1.1	40
53	The Effect of Landscape Pattern on the Optimal Eradication Zone of an Invading Epidemic. Phytopathology, 2010, 100, 638-644.	1.1	40
54	Infection of sugar beet by Polymyxa betae in relation to soil temperature. Plant Pathology, 1991, 40, 257-267.	1.2	39

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55	Biological control of pathozone behaviour and disease dynamics of Rhizoctonia solani by Trichoderma viride. New Phytologist, 1997, 136, 359-367.	3.5	39
56	A Model for the Invasion and Spread of Rhizomania in the United Kingdom: Implications for Disease Control Strategies. Phytopathology, 2004, 94, 209-215.	1.1	39
57	Modelling and manipulation of aphid-mediated spread of non-persistently transmitted viruses. Virus Research, 2020, 277, 197845.	1.1	39
58	Bayesian estimation for percolation models of disease spread in plant populations. Statistics and Computing, 2006, 16, 391-402.	0.8	38
59	Invasion, persistence and control in epidemic models for plant pathogens: the effect of host demography. Journal of the Royal Society Interface, 2010, 7, 439-451.	1.5	38
60	An early warning system to predict and mitigate wheat rust diseases in Ethiopia. Environmental Research Letters, 2019, 14, 115004.	2.2	38
61	Invasion thresholds for fungicide resistance: deterministic and stochastic analyses. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 2539-2549.	1.2	37
62	QUANTIFICATION AND ANALYSIS OF TRANSMISSION RATES FOR SOILBORNE EPIDEMICS. Ecology, 2003, 84, 3232-3239.	1.5	37
63	Trade-off between disease resistance and crop yield: a landscape-scale mathematical modelling perspective. Journal of the Royal Society Interface, 2016, 13, 20160451.	1.5	37
64	Bayesian analysis of botanical epidemics using stochastic compartmental models. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12120-12124.	3.3	36
65	Searching for the most cost-effective strategy for controlling epidemics spreading on regular and small-world networks. Journal of the Royal Society Interface, 2012, 9, 158-169.	1.5	36
66	Microsatellite Analysis and Urediniospore Dispersal Simulations Support the Movement of <i>Puccinia graminis</i> f. sp. <i>tritici</i> from Southern Africa to Australia. Phytopathology, 2019, 109, 133-144.	1.1	36
67	Invasion of drug and pesticide resistance is determined by a trade-off between treatment efficacy and relative fitness. Bulletin of Mathematical Biology, 2004, 66, 825-840.	0.9	34
68	A theoretical framework for biological control of soil-borne plant pathogens: Identifying effective strategies. Journal of Theoretical Biology, 2011, 278, 32-43.	0.8	34
69	A test of heterogeneous mixing as a mechanism for ecological persistence in a disturbed environment. Proceedings of the Royal Society B: Biological Sciences, 1997, 264, 227-232.	1.2	33
70	Population dynamics of botanical epidemics involving primary and secondary infection. Philosophical Transactions of the Royal Society B: Biological Sciences, 1997, 352, 591-608.	1.8	33
71	Epidemiological dynamics and the efficiency of biological control of soilâ€borne disease during consecutive epidemics in a controlled environment. New Phytologist, 2004, 161, 569-575.	3.5	32
72	Changes in fungicide sensitivity and relative species abundance in <i>Oculimacula yallundae</i> and <i>O. acuformis</i> populations (eyespot disease of cereals) in Western Europe. Plant Pathology, 2008, 57, 509-517.	1.2	31

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73	Persistence of Host-parasite Interactions in a Disturbed Environment. Journal of Theoretical Biology, 1997, 188, 241-258.	0.8	30
74	Epidemiology and Chemical Control of Take-All on Seminal and Adventitious Roots of Wheat. Phytopathology, 2005, 95, 62-68.	1.1	30
75	The Effect of Heterogeneity on Invasion in Spatial Epidemics: From Theory to Experimental Evidence in a Model System. PLoS Computational Biology, 2011, 7, e1002174.	1.5	30
76	Bayesian Analysis for Inference of an Emerging Epidemic: Citrus Canker in Urban Landscapes. PLoS Computational Biology, 2014, 10, e1003587.	1.5	30
77	Will an outbreak exceed available resources for control? Estimating the risk from invading pathogens using practical definitions of a severe epidemic. Journal of the Royal Society Interface, 2020, 17, 20200690.	1.5	30
78	Biological control in a disturbed environment. Philosophical Transactions of the Royal Society B: Biological Sciences, 1997, 352, 1935-1949.	1.8	29
79	Spatial dynamics and control of a crop pathogen with mixed-mode transmission. PLoS Computational Biology, 2017, 13, e1005654.	1.5	29
80	Large-Scale Atmospheric Dispersal Simulations Identify Likely Airborne Incursion Routes of Wheat Stem Rust Into Ethiopia. Phytopathology, 2017, 107, 1175-1186.	1.1	28
81	Transmission rates and adaptive evolution of pathogens in sympatric heterogeneous plant populations. Proceedings of the Royal Society B: Biological Sciences, 2004, 271, 2187-2194.	1.2	27
82	Different Plant Viruses Induce Changes in Feeding Behavior of Specialist and Generalist Aphids on Common Bean That Are Likely to Enhance Virus Transmission. Frontiers in Plant Science, 2019, 10, 1811.	1.7	27
83	Fitting of simple models for field disease progress data for the take-all fungus. Plant Pathology, 1989, 38, 397-407.	1.2	25
84	Economically optimal timing for crop disease control under uncertainty: an options approach. Journal of the Royal Society Interface, 2010, 7, 1421-1428.	1.5	25
85	INOCULUM EFFICIENCY AND PATHOZONE WIDTH FOR TWO HOST-PARASITE SYSTEMS. New Phytologist, 1987, 107, 549-566.	3.5	24
86	A Model for the Temporal Buildup of Polymyxa betae. Phytopathology, 1999, 89, 30-38.	1.1	24
87	Modeling and Analysis of Disease-Induced Host Growth in the Epidemiology of Take-All. Phytopathology, 2004, 94, 535-540.	1.1	24
88	Modelling of early infection of cereal roots by the takeâ€all fungus: a detailed mechanistic simulator. New Phytologist, 1994, 128, 515-537.	3.5	23
89	Soil-borne fungal pathogens: scaling-up from hyphal to colony behaviour and the probability of disease transmission. New Phytologist, 2001, 150, 169-177.	3.5	23
90	Evaluating the Performance of Chemical Control in the Presence of Resistant Pathogens. Bulletin of Mathematical Biology, 2007, 69, 525-537.	0.9	23

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91	Selecting hyperparasites for biocontrol of Dutch elm disease. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 437-445.	1.2	22
92	Grower and regulator conflict in management of the citrus disease Huanglongbing in Brazil: A modelling study. Journal of Applied Ecology, 2018, 55, 1956-1965.	1.9	22
93	The effect of sowing date on infection of sugar beet by Polymyxa betae. Plant Pathology, 1992, 41, 148-153.	1.2	21
94	The effect of cultivation on the size, shape, and persistence of disease patches in fields. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 7128-7133.	3.3	21
95	DAMPING-OFF EPIDEMICS, CONTACT STRUCTURE, AND DISEASE TRANSMISSION IN MIXED-SPECIES POPULATIONS. Ecology, 2005, 86, 1948-1957.	1.5	21
96	Modelling the effect of temperature on the development of Polymyxa betae. Plant Pathology, 2000, 49, 600-607.	1.2	20
97	Market analyses of livestock trade networks to inform the prevention of joint economic and epidemiological risks. Journal of the Royal Society Interface, 2016, 13, 20151099.	1.5	19
98	Expansion of the cassava brown streak pandemic in Uganda revealed by annual field survey data for 2004 to 2017. Scientific Data, 2019, 6, 327.	2.4	19
99	Biodiversity Conservation in the Face of Dramatic Forest Disease: An Integrated Conservation Strategy for Tanoak (<i>Notholithocarpus densiflorus</i>) Threatened by Sudden Oak Death. MadroÃ±o, 2013, 60, 151-164.	0.3	18
100	Considering behaviour to ensure the success of a disease control strategy. Royal Society Open Science, 2017, 4, 170721.	1.1	18
101	Antagonistic interactions involving plant pathogens: fitting and analysis of models to non-monotonic curves for population and disease dynamics. New Phytologist, 1990, 115, 649-665.	3.5	17
102	Asymptotic analysis of an epidemic model with primary and secondary infection. Bulletin of Mathematical Biology, 1997, 59, 1101-1123.	0.9	17
103	Epidemiological Analysis of Take-All Decline in Winter Wheat. Phytopathology, 2009, 99, 861-868.	1.1	17
104	On ?Analytical models for the patchy spread of plant disease?. Bulletin of Mathematical Biology, 2004, 66, 1027-1037.	0.9	16
105	Parameter estimation and prediction for the course of a single epidemic outbreak of a plant disease. Journal of the Royal Society Interface, 2007, 4, 865-877.	1.5	15
106	Complexity and anisotropy in host morphology make populations less susceptible to epidemic outbreaks. Journal of the Royal Society Interface, 2010, 7, 1083-1092.	1.5	15
107	Evidence-based controls for epidemics using spatio-temporal stochastic models in a Bayesian framework. Journal of the Royal Society Interface, 2017, 14, 20170386.	1.5	15
108	Epidemiological analysis of the effects of biofumigation for biological control of root rot in sugar beet. Plant Pathology, 2013, 62, 69-78.	1.2	13

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109	Three Aphid-Transmitted Viruses Encourage Vector Migration From Infected Common Bean (Phaseolus) Tj ETQq1 1 0.784314 rgBT /Ove 2020, 11, 613772.	1.7	13
110	An empirical method to estimate the effect of soil on the rate for transmission of dampingâ€•off disease. New Phytologist, 2004, 162, 231-238.	3.5	12
111	An Epidemiological Analysis of the Role of Disease-Induced Root Growth in the Differential Response of Two Cultivars of Winter Wheat to Infection by Gaeumannomyces graminis var. tritici. Phytopathology, 2006, 96, 510-516.	1.1	12
112	Beet western yellows virus on oilseed rape. Plant Pathology, 1980, 29, 53-53.	1.2	11
113	Modelling and Estimation of the Relative Potential for Infection of Winter Wheat by Inoculum of Gaeumannomyces graminis Derived from Propagules and Infected Roots. Journal of Phytopathology, 1990, 129, 58-68.	0.5	11
114	Computational models to improve surveillance for cassava brown streak disease and minimize yield loss. PLoS Computational Biology, 2020, 16, e1007823.	1.5	11
115	Host Growth Can Cause Invasive Spread of Crops by Soilborne Pathogens. PLoS ONE, 2013, 8, e63003.	1.1	10
116	Dynamical network models for cattle trade: towards economy-based epidemic risk assessment. Journal of Complex Networks, 2017, 5, 604-624.	1.1	10
117	An Epidemiological Framework for Modelling Fungicide Dynamics and Control. PLoS ONE, 2012, 7, e40941.	1.1	10
118	Scaling from mycelial growth to infection dynamics: a reaction diffusion approach. Fungal Ecology, 2008, 1, 133-142.	0.7	9
119	Quantitative Analysis and Model Simplification of an Epidemic Model with Primary and Secondary Infection. Bulletin of Mathematical Biology, 2000, 62, 377-393.	0.9	8
120	Estimating epidemiological parameters from experiments in vector access to host plants, the method of matching gradients. PLoS Computational Biology, 2020, 16, e1007724.	1.5	8
121	Wheat rust epidemics damage Ethiopian wheat production: A decade of field disease surveillance reveals national-scale trends in past outbreaks. PLoS ONE, 2021, 16, e0245697.	1.1	8
122	Size and shape of sampling units for estimating incidence of stem canker on oil-seed rape stubble in field plots after swathing. Journal of Agricultural Science, 1980, 94, 493-496.	0.6	7
123	A discrete probability model for polycyclic infection by soil-borne plant parasites. New Phytologist, 1988, 109, 183-191.	3.5	7
124	What a Difference a Stochastic Process Makes: Epidemiological-Based Real Options Models of Optimal Treatment of Disease. Environmental and Resource Economics, 2018, 70, 691-711.	1.5	7
125	Smallholder Cassava Planting Material Movement and Grower Behavior in Zambia: Implications for the Management of Cassava Virus Diseases. Phytopathology, 2021, 111, 1952-1962.	1.1	7
126	Effects of Self-sown Wheat on Levels of the Take-all Disease on Seedlings of Winter Wheat Grown in a Model System. Journal of Phytopathology, 1990, 129, 46-57.	0.5	6

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127	Size and shape of sampling units for estimating incidence of sharp eyespot, Rhizoctonia cerealis, in plots of wheat. Journal of Agricultural Science, 1982, 99, 461-464.	0.6	5
128	What is pathogen-mediated insect superabundance?. Journal of the Royal Society Interface, 2020, 17, 20200229.	1.5	5
129	Predicting the potential for spread of emerald ash borer (Agrilus planipennis) in Great Britain: What can we learn from other affected areas?. Plants People Planet, 2021, 3, 402-413.	1.6	5
130	Estimating expansion of the range of oak processionary moth (Thaumetopoea processionea) in the UK from 2006 to 2019. Agricultural and Forest Entomology, 0, , .	0.7	5
131	Regional Differences in Control Operations during the 2019â€“2021 Desert Locust Upsurge. Agronomy, 2021, 11, 2529.	1.3	5
132	The role of pathogen mediated insect superabundance in the eastâ€African emergence of a plant virus. Journal of Ecology, 0, , .	1.9	4
133	Management Strategies for Conservation of Tanoak in California Forests Threatened by Sudden Oak Death: A Disease-Community Feedback Modelling Approach. Forests, 2019, 10, 1103.	0.9	3
134	Variability in commercial demand for tree saplings affects the probability of introducing exotic forest diseases. Journal of Applied Ecology, 2019, 56, 180-189.	1.9	3
135	Analytical approximation for invasion and endemic thresholds, and the optimal control of epidemics in spatially explicit individual-based models. Journal of the Royal Society Interface, 2021, 18, 20200966.	1.5	3
136	Optimal control of disease infestations on a lattice. Mathematical Medicine and Biology, 2014, 31, 87-97.	0.8	1
137	Rasterising Epidemiological Host Data Efficiently. , 2014, , .		0
138	Title is missing!. , 2020, 16, e1007823.		0
139	Title is missing!. , 2020, 16, e1007823.		0
140	Title is missing!. , 2020, 16, e1007823.		0
141	Title is missing!. , 2020, 16, e1007823.		0