

Adam Pellegrini C.V.

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Positions

University of Cambridge (Cambridge, England)	2020-present
Assistant Professor, Dept. of Plant Sciences	2020-present
Director of Studies, Biology, Newnham College	2020-present
Cambridge Conservation Research Institute	2020-present
University of Michigan (Ann Arbor, Michigan, USA)	2022-present
Fellow, Institute for Global Change Research	
Stanford University (Stanford, California, USA)	2016-2020
USDA National Institute of Food and Agriculture Postdoctoral Fellow, Dept. Earth System Science	2018-2020
NOAA Climate and Global Change Postdoctoral Fellow, Dept. Earth System Science	2016-2018

Education

Princeton University (Princeton, New Jersey, USA)	2016
Ph.D. Dept. of Ecology and Evolutionary Biology	
Princeton University (Princeton, New Jersey, USA)	2012
MA. Dept. of Ecology and Evolutionary Biology	
Colgate University (Hamilton, New York, USA)	2010
BA. <i>magna cum laude</i> with High Honors in Biology	

Current and Previous Grants

Determining the potential for soil carbon storage under different fire regimes in drylands (€1,497,190, European Research Council Starter Grant)	2023-present
Nature-based climate solutions in UK Peatlands (£206,892, Quadrature Foundation, UK)	2022-present
Landscape Regeneration Solutions to the Interlinked Extinction and Climate Crises that support Sustainable Development (£87,387, co-I, total grant of £9,935,150, Natural Environment Research Council, UK)	2022-present
Farming for carbon: models and survey on potential climate change mitigation (£84,421, Natural Environment Research Council, UK)	2022-present
Public health burden of wildfires in the United Kingdom (£56,622, Isaac Newton-Wellcome Trust, Univ. Cambridge, UK)	2021-present
Ecosystem and biogeochemical reassembly after fire on peatlands (£82,059, Natural Environment Research Council, UK)	2021-present
The resilience of savannas to changing fire regimes (£82,059, Natural Environment Research Council, UK)	2020-present
Compounded biogeochemical effects of fire on western U.S. forests (£7,500, National Park Service)	2018-2020
Predicting the resilience of carbon sequestration and productivity of forests and grasslands to changes in fire (£165,000, USDA National Institute of Food and Agriculture postdoctoral fellowship)	2018-2020
Role of plant traits, fire history and nutrients in determining the response of ecosystems to fire (£146,900, NOAA Climate & Global Change postdoctoral fellowship)	2016-2018
Predicting the resilience of carbon sequestration in western forests and grasslands to changes in drought and fire (£151,800, USDA National Institute of Food and Agriculture postdoctoral fellowship, recipient declined)	2016
Resilience of plant communities to fire-driven biogeochemical changes (£3,475, Princeton Univ.)	2016

Carbon and nutrient dynamics at Neotropical savanna-forest boundaries (\$4,930, National Geographic Society)	2014-2015
Effects of fire on savanna ecosystem productivity (~\$150,000, NSF Graduate Research Fellowship).	2012-2015
Role of nutrient losses in determining tropical ecosystem function (\$41,500, Latin American Studies at Princeton Univ.)	2011-2012

Publications

31. Pellegrini, AFA, Anderegg, L, Pinto-Ledezma, J, Cavender-Bares, J, Hobbie, S, Reich, P. (*in press*, 2023) Consistent physiological, ecological, and evolutionary effects of fire regime on conservative leaf economics strategies in plant communities. **Ecology Letters**, *in press*
30. Shuman JK et al. (87 authors including **AFA Pellegrini**). (2022) Reimagine fire science for the anthropocene. **Proceedings of the National Academy of Sciences Nexus**, 1: 1-14.
29. Georgiou, K, Jackson, RB, Vinduskova, O, Abramoff, RZ, Ahlstrom, A, Feng, W, Harden, JW, **Pellegrini, AFA**, Polley, HW, *Soong*, JL, Riley WJ, Torn, MS. (2022) Global stocks and capacity of mineral-associated soil organic carbon. **Nature Communications**, 13: 1-12.
28. Eklund, J, Jones, JPG, Rasanen, M, Geldmann, J, Jokinen, AP, **Pellegrini, AFA**, Rakotobe, D, Rakotonarivo, OS, Toivonen, T, Balmford, A. (2022) Elevated fires during COVID-19 lockdown reveal protected area vulnerability. **Nature Sustainability**, 5: 603-609.
27. Xu, S, Eisenhauer, N, **Pellegrini, AFA**, Wang, J, Certini, G, Guerra, CA, Lai, DYF. (2022) Fire frequency and type regulate the response of soil carbon cycling and storage to fire across soil depths and ecosystems: a meta-analysis. **Science of the Total Environment**, 825: 153921.
26. **Pellegrini, AFA**, Harden, J, Georgiou, K, Hemes, K, Maholtra, A, Nolan, C, Jackson, RB. (2022) Fire effects on the persistence of soil organic matter and long-term carbon storage. **Nature Geoscience**, 15: 5-13.
25. Harrison, SP, Prentice, IC, (16 authors including **AFA Pellegrini**). (2021) Understanding and modelling wildfire regimes: an ecological perspective. **Environmental Research Letters** 16: 125008.
24. Terrer, C, Phillips, RP, Hungate, BA, Rosende, J, Pett-Ridge, J, Craig, ME, van Groenigen, KJ, Keenan, TF, Sulman, BN, Stocker, BD, Reich, PB, **Pellegrini, AFA**, Pendall, E, Zhang, H, Evans, RD, Carrillo, Y, Fisher, JB, Van Sundert, K, Vicca, S, Jackson, RB. (2021). A trade-off between plant and soil carbon storage under elevated CO₂. **Nature**, 591: 599-603.
23. **Pellegrini, AFA**, Caprio, A, Georgiou, K, Finnegan, C, Hobbie, SE, Hatten, J, Jackson, RB. (2021) Low-intensity frequent fires in coniferous forests transform soil organic matter in ways that may offset ecosystem carbon losses. **Global Change Biology**, doi.org/10.1111/gcb.15648
22. **Pellegrini, AFA**, Hein, A, Cavender-Bares, J, Montgomery, R, Staver, AC, Silla, F, Hobbie, SE, Reich, PB. (2021) Disease and fire interact to influence transitions between savanna-forest ecosystems over a multi-decadal experiment. **Ecology Letters**, 24: 1007-1017, doi.org/10.1111/ele.13719
21. **Pellegrini, AFA**, Refsland, T, Averill, C, Terrer, C, Staver, AC, Brockway, DG, Caprio, A, Clatterbuck, W, Coetsee, C, Haywood, JD, Hobbie, SE, Hoffmann, WA, Kush, J, Lewis, T, Moser, WK, Overby, ST, Patterson, B, Peay, KG, Reich, PB, Ryan, C, Sayer, MAS, Scharenbroch, BC, Schoennagel, T, Smith, GR, Stephan, K, Swanston, C, Turner, MG, Varner, TM, Jackson, RB. (2021) Decadal changes in fire frequencies shift tree communities and functional traits. **Nature Ecology and Evolution**, 5: 504-512 doi.org/10.1038/s41559-021-01401-7

20. **Pellegrini, AFA**, Hobbie, SE, Reich, PB, Jumpponen, A, Brookshire, ENJ, Caprio, AC, Coetsee, C, Jackson, RB. (2020) Repeated fire shifts carbon and nitrogen cycling by changing plant inputs and soil decomposition across ecosystems. **Ecological Monographs**, 90: e01409, doi.org 10.1002/ecm.1409
19. **Pellegrini, AFA** & Jackson, RB. (2020) The long and short of it: the timescales of how fire affects soils using the pulse-press framework. **Advances in Ecological Research**, 62:147-171
18. **Pellegrini, AFA**, McLauchlan, K, Hobbie, SE, Mack, M, Marcotte, A, Nelson, D, Perakis, S, Reich, P, Whittinghill, K. (2020) Frequent burning causes large losses of carbon from deep soil layers in a temperate savanna. **Journal of Ecology**, 108: 1426-1441, doi.org/10.1111/1365-2745.13351
17. Future of Fire Consortium (44 authors including **Pellegrini, AFA**). (2020) Fire as a fundamental ecological process: research advances and frontiers. **Journal of Ecology**, 108: 2047-2069, doi.org/10.1111/1365-2745.13403
16. Du, E, Terrer, C, **Pellegrini, AFA**, Ahlström, A, Zhao, X, Xia, N, Wu, X., Jackson, R. (2020) Global patterns in terrestrial nitrogen and phosphorus limitation. **Nature Geoscience**, 13: 221-226, doi.org/10.1038/s41561-019-0530-4
15. Wooliver, R, **Pellegrini, AFA**, Waring, B, Houlton, B, Averill, C, Schimel, J, Hedin, L, Bailey, J, Schweitzer. (2019) Changing perspectives on terrestrial nitrogen cycling: the importance of weather and feedbacks from evolved resource-use traits for natural gradients of soil nitrogen. **Functional Ecology**, 33: 1818-1829
14. Hebert-Dufresne, L, **Pellegrini, AFA**, Bhat, U, Redner, S, Pacala SW, Berdahl, A. (2018) Edge fires drive the shape and stability of tropical forests. **Ecology Letters**, 21: 233-243
13. Trugman, AT*, Medvigy, D., Hoffmann, WA, **Pellegrini, AFA***. (2018) Sensitivity of woody carbon stocks to bark investment strategy in Neotropical savannas and forests. **Biogeosciences**, 15: 233-243
12. **Pellegrini, AFA**, Ahlström, A, Hobbie, S, Reich, P, Nieradzik, L, Staver, AC, Scharenbroch, B, Jumpponen, A, Anderegg, W, Randerson, J, Jackson, R. (2018) Fire frequency drives decadal changes in soil carbon and nitrogen and ecosystem productivity. **Nature**, 553: 194–198
11. **Pellegrini, AFA**, Anderegg, WRL, Paine, CET, Hoffmann WA, Kartzinel, T, Rabin, S, Paine, CET, Sheil, D, Franco, A & Pacala, SW. (2017) Convergence of bark investment according to fire and climate structures ecosystem vulnerability to future change. **Ecology Letters**, 20: 307-316
10. **Pellegrini, AFA**, Pringle, RM, Govender, N, & Hedin, LO. (2017) Woody plant biomass and carbon exchange depend on elephant-fire interactions across a productivity gradient in African savanna. **Journal of Ecology**, 105: 111-121 **Editor's choice
9. **Pellegrini, AFA**, Staver, AC, Hedin, LO, Charles-Dominique, T & Tourgee, A. (2016) Aridity, not fire, favors nitrogen-fixing plants across tropical savanna and forest biomes. **Ecology**, 97:2177-2183
8. **Pellegrini, AFA**, Socolar, S, Elsen, P & Giam, X. (2016) Tradeoffs between savanna woody plant diversity and carbon storage in the Brazilian Cerrado. **Global Change Biology**, 22:3373-3382
7. Anderegg, WRL, Klein, T, Bartlett, M, Sack, L, **Pellegrini, AFA**, Choat, B, & Jansen, S. (2016) Meta-analysis reveals that hydraulic traits explain cross-species patterns of drought-induced tree mortality across the globe. **PNAS**, 113: 5024-5029
6. **Pellegrini, AFA**, Hoffmann, WA, & Franco, A. (2016) Shifts in functional traits elevate risk of fire-driven tree dieback in tropical savanna and forest biomes. **Global Change Biology**, 22: 1235-1243
5. **Pellegrini, AFA**. (2016) Nutrient limitation in tropical savannas across multiple scales and mechanisms. **Ecology, Concepts & Synthesis**, 97: 313-324

4. **Pellegrini, AFA**, Hedin, LO, Staver, AC, & Govender, N (2015) Fire alters ecosystem carbon and nutrients but not plant nutrient stoichiometry or composition in tropical savanna. **Ecology**, 96: 1275-1285
3. **Pellegrini, AFA**, Hoffmann, WA & Franco, A (2014) Carbon accumulation and nitrogen pool recovery during transitions from savanna to forest in Central Brazil. **Ecology**, 95: 342-352
2. **Pellegrini, AFA** & Soja, C (2012) Post-tectonic limitations on Early Devonian (Emsian) reef development in the Gobi-Altai region, Mongolia. **Lethaia**, 45:46-61
1. **Pellegrini, AFA**, Wisenden, BD & Sorensen, PW (2010) Bold minnows consistently approach danger in the field and lab in response to either chemical or visual indicators of predation risk. **Behavioural Ecology and Sociobiology**, 64: 381-387

Contribution to diversity, equity, and inclusion

NERC grant in climate science for a female PhD student (University of Cambridge)	2021
Cambridge Trust research fellowship for a female PhD student (University of Cambridge)	2020
NERC grant in climate science for a female PhD student (University of Cambridge)	2020
Panel member on promoting diversity in research fellowships (University of Cambridge)	2019-present
Workshop for research opportunities for women in science (Newnham College)	2019
SURGE Research Diversity Program (Stanford University)	2018-2019

Academic Honors and Awards

European Research Council Starter Grant (€1,497,190)	2022
USDA National Institute of Food and Agriculture Postdoctoral Fellowship (\$165,000, USDA)	2017
NOAA Climate and Global Change Postdoctoral Fellowship (\$146,900, NOAA)	2016
USDA National Institute of Food and Agriculture Postdoctoral Fellowship (\$151,800, USDA)	2016
Recommended for award but recipient declined	
William Ebenstein Student Research Grant (\$3,475, Princeton Univ.)	2016
INTERFACE ecological modelling scholarship (~\$1,500, NSF)	2015
Department of Ecology and Evolutionary Biology symposium grant (\$2,750, Princeton Univ.)	2015
National Geographic Society Young Explorer (\$4,930, NGS)	2013
Latin American Studies Research Grant (\$1,800, Princeton Univ.)	2012
National Science Foundation-Graduate Research Fellowship Program (~\$150,000, NSF)	2012
Lassen Graduate Student Fellowship (\$72,484, Princeton Univ.)	2011
Oswald T. Avery Award for excellence in biology (Colgate Univ.)	2010
Natural Sciences Research Grant (\$3,800, Colgate Univ.)	2010
George E. Stevenson Award for outstanding research (\$1,100, Colgate Univ.)	2010
Douglas Rankin '53 Geology Research Fellowship (\$5,000, Colgate Univ.)	2009
International Research Experience Fellowship (\$6,500, Univ. of Connecticut)	2009
National Science Foundation REU in Global Change Ecology (\$7,400, Univ of Minnesota)	2007
International Baccalaureate Diploma Highschool	2006
Al Halley Athlete-Scholar Award	2006

Advisory activities

External Advisor for McKinsey Sustainability (McKinsey & Company)	2022
External Advisor for Zulu Forest (Zulu Forest, Inc)	2021

Service and other professional activities

Academic Representative for Climate Change Ecology Special Interest Group (British Ecological Society)	2022
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Leverhulme Wildfire Centre Workshop (Imperial College, London)	2021
Invited workshop on novel fire research and model development	
Wildfire and Biosphere Workshop (NSF)	2021
Global Rainforest Convening Workshop (National Geographic Society)	2019
Invited workshop to evaluate funding priorities in rainforest research	
Future of Fire workshop (NSF)	2017
Invited workshop funded by the National Science Foundation.	
INTERFACE workshop on Earth system models (NSF)	2016
Invited workshop funded by the National Science Foundation.	
Workshop on trait methods for representing ecosystem change (DoE)	2015
Invited workshop funded by the Department of Energy	
Leading department statistics assistance (Princeton Univ.)	2015-2016
Organize and teach statistics to undergraduates	
Mentor-mentee pairing of graduate students (Princeton Univ.)	2012-2016
Mentored younger graduate students on research design and theory	
Graduate student representative (Princeton Univ.)	2012
Liaison between the department of Ecology and Evolutionary Biology and the Graduate Student Government	
Freshman orientation leader (Colgate University)	2007-2010
Led freshman orientation and the first-year experience of incoming students; organized social events and evaluated academic stability of students; served as a professional resource	
Ad hoc reviewer for: Nature, Nature Ecology and Evolution, Proceedings of the National Academy of Sciences, Ecology Letters; Ecology; Ecological Monographs; Ecosystems; Ecological Applications; New Phytologist; J. Applied Ecology; J. Functional Ecology; J. Geophysical Research; American J. Botany; Nature Communications; PLoS One	

Teaching and supervision training

Bias and Discrimination in Natural Sciences (University of Cambridge)	2021
Undergraduate Supervisions (University of Cambridge)	2020
Bias in Teaching and Mentoring (University of Cambridge)	2020

Invited Seminars

Oxford University, Invited seminar	2022
Leverhulme Wildfire Centre, Invited seminar	2021
University of Aberdeen, Invited seminar	2020
University of California, Santa Cruz, Invited seminar	2020
Stanford University, Invited seminar	2020
University of Cambridge, Invited seminar	2019
Massachusetts Institute of Technology, Invited seminar	2019
University of California, Los Angeles, Invited seminar	2019
University of Chicago, Invited seminar	2019
University of Oregon, Invited seminar	2019
Harvard University, Invited seminar	2018
University of Montana, Invited seminar	2017
United States Geological Survey, Menlo Park, Invited seminar	2017
Lawrence Berkeley National Lab, Invited seminar	2017
University of Utah, Invited seminar	2017
University of Minnesota, Invited seminar	2016
Colgate University, Invited seminar	2016
University of Michigan, Invited seminar	2016
Princeton University, Invited seminar	2016
Santa Fe Institute, Invited seminar	2015

Colloquia

Compound disturbances create a tradeoff between the potential for and persistence of carbon storage in savanna and forest ecosystems	2022
Oral presentation, Ecological Society of America Conference	
Soil carbon storage is most limited by fire in semi-arid ecosystems	2021
Invited talk, Ecological Society of America	
Shifting focus from a top-down to a bottom-up understanding of fire effects on soils	2021
Invited talk, Leverhulme Centre for Wildfire Research	
Frequent burning filters for conservative nutrient use strategies and dampens nitrogen cycling across temperate ecosystems	2020
Oral presentation, British Ecological Society	
Limited carbon cost of fire management in Californian forests: compensatory responses may buffer against long-term soil carbon losses	2019
Oral presentation, American Geophysical Union	
Frequent fires and potential feedbacks with ecosystem carbon cycling	2019
Invited talk, Chapman Conference, American Geophysical Union	
The role of plant-soil interactions in structuring the resilience of ecosystems to repeated burning	2019
Invited talk, Ecological Society of America Conference	
Frequent burning alters the composition and activity of microbial communities in soils by changing soil chemistry and plant traits	2019
Invited talk, Soil Science Society of America Conference	
The role of plant-microbe-soil interactions in determining the biogeochemical response of ecosystems to fire	2018
Oral presentation, American Geophysical Union Conference	
The role of plant-microbe-soil interactions in determining the biogeochemical response of ecosystems to fire	2018
Oral presentation, Ecological Society of America Conference	
Shifting fire regimes alter soil carbon and nutrient storage at the global scale	2017
Oral presentation, American Geophysical Union Conference	
Nitrogen losses during fire and the emergence of fire-plant-soil feedbacks across individual community, and ecosystem scales	2017
Invited talk, Ecological Society of America Conference	
Large long-term effects of fire on soil carbon and nutrients across ecosystems: A meta-analysis	2016
Oral presentation, American Geophysical Union Conference	
Global adaptability and vulnerability of ecosystems to changing fire regimes	2016
Oral presentation, Ecological Society of America Conference	
Long-term interactive effects of elephants, fire and rainfall determine woody plant biomass in African savanna	2015
Oral presentation, Ecological Society of America Conference	
Long-term interactive effects of elephants, fire and rainfall determine woody plant biomass in African savanna	2015
Oral presentation, Association for Tropical Biology Conference	
Carbon accumulation and nitrogen pool recovery during transitions from savanna to forest	2014
Oral presentation, American Geophysical Union Conference	