

Lara M. Kueppers

Energy and Resources Group
University of California, Berkeley
345 Giannini Hall, Berkeley, CA 94720-3050

lmkueppers@berkeley.edu
<https://lara-kueppers.com/>
c. 510.457.6524

Research Interests & Expertise

Climate-ecosystem interactions and feedbacks, ecological impacts of climate change, model-experiment integration, agriculture and climate change, regional Earth system modeling, novel plant-microbe interactions, climate change policy.

Education

University of California, Berkeley
Ph.D. (2003) Environmental Science, Policy and Management

Stanford University
B.S., M.S. (1996) Earth Systems – Biosphere track

Positions

2019-present *Associate Professor*, Energy and Resources Group, UC Berkeley
2017-present *Faculty Scientist*, Climate and Ecosystem Sciences Division, Lawrence Berkeley National Laboratory
2017-2019 *Assistant Professor*, Energy and Resources Group, UC Berkeley
2013-2017 *Assistant Research Scientist*, Sierra Nevada Research Institute, UC Merced
2013-2016 *Research Scientist*, Climate and Ecosystem Sciences Division, Lawrence Berkeley National Laboratory
2012-2013 *Faculty Scientist*, Earth Sciences Division, Lawrence Berkeley National Laboratory
2006-2013 *Assistant Professor*, School of Natural Sciences, UC Merced
2006 *Instructor*, Rocky Mountain Biological Laboratory, Colorado
2006 *Senior Research Associate*, Climate Change and Carbon Management Program, Earth Sciences Division, Lawrence Berkeley National Laboratory
2004-2006 *Postdoctoral Researcher*, Department of Earth Sciences, UC Santa Cruz
1995 *Graduate Student Researcher*, International Institute of Tropical Forestry, Puerto Rico

Awards and Fellowships

2021 Fellow, California Academy of Sciences
2015 Women @ The Lab award, Lawrence Berkeley National Laboratory
2004 Central Coast Joint Data Committee, 2004 GIS Day Map Contest Award
2004 Postdoctoral Program in Climate and Global Change, NOAA (selected as alternate)
1999-2003 Graduate Research Environmental Fellowship, US Department of Energy (\$76,400)
2001 Walter and Ruth Schubert Prize in Ecosystem Sciences, UC Berkeley (\$2,000)

1999-2000 University Fellowship, UC Berkeley (I declined this award)
1997-1998 University Fellowship, UC Berkeley (\$13,000)

Manuscripts in Review or in Revision (* student or † postdoc co-author)

*Hanbury-Brown, A., D. Young, J. Holm, J. Chambers, **L. Kueppers**. Intensifying fire regimes and water limitation drive declines in post-fire conifer regeneration that persist for decades. Submitted to *Global Change Biology*.

Shuman, J.K., R. A. Fisher, C. D. Koven, R. G. Knox, **L. M. Kueppers**, and C. Xu. Dynamic ecosystem assembly and escaping the “fire-trap” in the tropics: Insights from FATES_15.0.0 In review at *Geoscientific Model Development*.

†Gao, X., C. Koven, and **L. Kueppers**. Allometric relationships and trade-offs in eleven common Mediterranean-climate grasses. In review at *Ecological Applications*.

Knox, R., C. Koven, W. Riley, A. Walker, S. J. Wright, J. Holm, X. Wei, R. Fisher, Q. Zhu, J. Tang, D. Ricciuto, J. Shuman, X. Yang, **L. Kueppers**, and J. Chambers. Nutrient dynamics in a coupled terrestrial biosphere and land model (ELM-FATES). In review at *JAMES*.

Carper, D., T. Lawrence, D. Quiroz, **L. Kueppers**, and A.C. Frank. Foliar microbiome structure across the species range of limber pine. Submitted to *ISME Communications*.

†Powell, T. L., C. D. Koven, R. A. Fisher, N. G. McDowell, S. J. Wright, J. Q. Chambers, and **L. M. Kueppers**. Trait trade-offs and neighborhood competition promote functional diversity. In revision for *Nature Communications*.

Publications (* student or † postdoc co-author, [#] Publons times cited) Researcher ID M-8323-2013, ORCID ID 0000-0002-8134-3579)

86. Shi, M., M. Keller, B. Bomfim†, L. Li, C. Koven, **L. Kueppers**, R. Knox, J. Needham, S.-C. Kao, P. Thornton, M. Thornton, and L. R. Leung. 2023. Functionally Assembled Terrestrial Ecosystem Simulator (FATES) for hurricane disturbance and recovery. Accepted at *JAMES*.

85. †Ding, J., P. Buotte†, R. Bales, B. Christoffersen, R. Fisher, M. Goulden, R. Knox, **L. Kueppers**, J. Shuman, C. Xu, and C. Koven. 2023. Coordination of rooting, xylem, and stomatal strategies explains the response of conifer forest stands to multi-year drought in the Southern Sierra Nevada of California. *Biogeosciences* 20: 4491–4510, <https://doi.org/10.5194/bg-20-4491-2023>

84. Wilcox, K., A. Chen, M. Avolio, E. Butler, S. Collins, R. Fisher, T. Keenan, N. Kiang, A. Knapp, S. Koerner, **L. Kueppers**, G. Liang, E. Lieungh, M. Loik, Y. Luo, B. Poulter, P.B. Reich, K. Renwick, M. Smith, A. Walker, E. Weng, and K. Komatsu. 2023. Accounting for herbaceous communities in process-based models will advance our understanding of “grassy” ecosystems. *Global Change Biology* 29(23): 6453-6477, <https://doi.org/10.1111/gcb.16950>

83. Xu, C., B. Christoffersen, Z. Robbins, R. Knox, R. A. Fisher, R. Chitra-Tarak, M. Slot, K. Solander, **L. Kueppers**, C. Koven, and N. McDowell. 2023. Quantification of hydraulic trait control on plant hydrodynamics and risk of hydraulic failure within a demographic structured vegetation model in a tropical forest (FATES-HYDRO V1.0). *Geoscientific Model Development* 16(21): 6267–6283, <https://doi.org/10.5194/egusphere-2023-278>

82. †Bomfim, B., D. Bloom*, Y. Feng*, and **L. M. Kueppers**. 2023. Combining field and remote sensing data to estimate forest canopy damage and recovery following tropical cyclones across tropical regions. *Environmental Research: Ecology* 2: 035004,

<https://doi.org/10.1088/2752-664X/acfaa3>

81. *Vásquez, V. N., **L. M. Kueppers**, G. Rasic, and J. M. Marshall. 2023. wMel replacement of dengue-competent mosquitoes is robust to near-term climate change. *Nature Climate Change* 3: 848–855, <https://doi.org/10.1038/s41558-023-01746-w> [2]
80. Robbins, Z., C. Xu, A. Jonko, R. Chitra-Tarak, C. J. Fettig, J. Costanza, L. A. Mortenson, B. H. Aukema, **L. M. Kueppers**, and R. M. Scheller. 2023. Carbon stored in live ponderosa pines in the Sierra Nevada will not return to pre-drought (2012) levels during the 21st century due to bark beetle outbreaks. *Frontiers in Environmental Science*, 11, 10.3389/fenvs.2023.1112756 [1]
79. *Bai, Y., Y. Liu, **L. Kueppers**, X. Feng, T. Powell[†], E. Li, C. C. Zhang, K. Yu, X.-F. Yang, and X.-Y. Li. 2022. Hydraulic sensitivity and stomatal regulation of two desert riparian species. *JGR- Biogeosciences* 127(10): e2022JG006971, <http://doi.org/10.1029/2022JG006971> [1]
78. Chitra-Tarak, R., J. F. Needham, A. Hanbury-Brown*, E. Robles, C. Varadharajan, R. Knox, and **L. Kueppers**. 2023. Advancing our understanding of tropical forests and improving the predictive capability of vegetation models with data-model integration at Barro Colorado Island. In *The First 100 Years of Research on Barro Colorado Island: Plant and Ecosystem Science*. H. C. Muller-Landau and S. J. Wright, editors. Smithsonian Institution Scholarly Press. (in press)
77. Hansen, W. D., A. P. Williams, N. B. Schwartz, K. Albrich, **L. M. Kueppers**, A. Rammig, C. P.O. Reyer, A. C. Staver, and R. Seidl. 2022. Global forests are influenced by legacies of past inter-annual temperature variability. *Environmental Research: Ecology* 1: 011001. <https://doi.org/10.1088/2752-664X/ac6e4a>
76. [†]Bomfim, B., A. Walker, W. McDowell, J. Zimmerman, Y. Feng*, and **L. M. Kueppers**. 2022. Linking soil phosphorus with forest litterfall resistance and resilience to cyclone disturbance: a pantropical meta-analysis. *Global Change Biology*. 28 (15): 4633-4654, <https://doi.org/10.1111/gcb.16223>. [4]
75. *Hanbury-Brown, A., R. Ward*, and **L. M. Kueppers**. 2022. Forest regeneration within Earth system models: current process representations and ways forward. *New Phytologist*. 235 (1): 20-40, <https://doi.org/10.1111/nph.18131> (invited *Tansley Review*) [11]
74. *Hanbury-Brown, A., T. Powell[†], H. Muller-Landau, S. J. Wright, and **L. M. Kueppers**. 2022. Simulating environmentally sensitive tree recruitment in vegetation demographic models. *New Phytologist* 235 (1): 78-93, <https://doi.org/10.1111/nph.18059> [3]
73. [†]Bomfim, B., E. Rangel Pinagé, F. Emmert and **L. M. Kueppers**. 2022. Improving sustainable tropical forestry management with voluntary carbon markets. *Plant and Soil* <https://doi.org/10.1007/s11104-021-05249-5> [5]
72. *Bai, Y., Y. Liu, **L. M. Kueppers**, X. Feng, K. Yu, X. Yang, X. Li, and J. Huang. 2021. The coupled effect of soil and atmospheric constraints on the vulnerability and water use of two desert riparian ecosystems. *Agriculture and Forest Meteorology* 311: 108701, <https://doi.org/10.1016/j.agrformet.2021.108701> [4]
71. Robbins, Z. J., C. Xu, B. H. Aukema, P. C. Buotte, R. Chitra-Tarak, C. J. Fettig, M. L. Goulden, D. W. Goodsman, A. D. Hall, C. D. Koven, **L. M. Kueppers**, G. D. Madakumbura, L. A. Mortenson, J. A. Powell, and R. M. Scheller. 2022. Warming increased bark beetle-induced tree mortality by 30% during an extreme drought in California. *Global Change Biology*. 28 (2): 509-523 <https://doi.org/10.1111/gcb.15927> [24]

70. †Buotte, P., C. Koven, C. Xu, J. Shuman, M. Goulden, S. Levis, J. Katz*, J. Ding†, W. Ma†, Z. Robbins*, and **L. Kueppers**. 2021. Capturing functional strategies and compositional dynamics in vegetation demographic models. *Biogeosciences* 18, 4473–4490, <https://doi.org/10.5194/bg-18-4473-2021> [7]
69. †Ma, W., L. Zhai†, A. Pivovarov†, J. Shuman, P. Buotte†, J. Ding†, B. Christoffersen, M. Moritz, C. D. Koven, **L. Kueppers**, and C. Xu. 2021. Assessing Climate Change Impacts on Live Fuel Moisture and Wildfire Risk Using a Hydrodynamic Vegetation Model. *Biogeosciences* 18, 4005–4020, <https://doi.org/10.5194/bg-18-4005-2021> [16]
68. †Chitra-Tarak, R., C. Xu, S. Aguilar, K. Anderson-Teixeira, J. Chambers, M. Detto, B. Faybishenko, R. Fisher, R. Knox, C. Koven, **L. Kueppers**, N. Kunert, S. Kupers, N. McDowell, B. Newman, S. Paton, R. Perez, L. Ruiz, L. Sack, J. Warren, B. Wolfe, C. Wright, S. J. Wright, J. Zailaa, and S. McMahon. 2021. Hydraulically-vulnerable trees survive on deep-water access during droughts in a tropical forest. *New Phytologist* 231(5): 798-1813, <https://doi.org/10.1111/NPH.17464> [43]
67. *Madakumbura, G. D., M. L. Goulden, A. Hall, R. Fu, M. A. Moritz, C. D. Koven, **L. M. Kueppers**, C. A. Norlen, and J. T. Randerson. 2020. Recent California tree mortality portends future increase in drought-driven forest die-off. *Environmental Research Letters*, 15 124040. doi: 10.1088/1748-9326/abc719 [16]
66. Yang, Y., J. A. Klein, D. E. Winkler, A. Peng, B. E. Lazarus, M. J. Germino, K. N. Suding, J. Smith, and **L. M. Kueppers**. 2020. Warming of alpine tundra enhances belowground production and shifts community towards resource acquisition traits. *Ecosphere* 11(10): e03270. doi: 10.1002/ecs2.3270 [7]
65. *Jabis, M., D. Winkler, and **L. M. Kueppers**. 2020. Warming acts through earlier snowmelt to advance but not extend alpine community flowering. *Ecology* 101 (9): e03108. doi: 10.1002/ecy.3108 [15]
64. *Jabis, M. D., M. J. Germino, and **L. M. Kueppers**. 2020. Colonisation of the alpine tundra by trees: alpine neighbours assist late-seral but not early-seral conifer seedlings. *Plant Ecology and Diversity*, 13(3-4): 209-224. doi: 10.1080/17550874.2020.1762134 [4]
63. Koven, C. D., R. G. Knox, R. A. Fisher, J. Chambers, B. O. Christoffersen, S. J. Davies, M. Detto, M. C. Dietze, B. Faybishenko, J. Holm, M. Huang, M. Kovenock, **L. M. Kueppers**, G. Lemieux, E. Massoud, N. G. McDowell, H. C. Muller-Landau, J. F. Needham, R. J. Norby, T. Powell, A. Rogers, S. P. Serbin, J. K. Shuman, A. L. S. Swann, C. Varadharajan, A. P. Walker, S. J. Wright, and C. Xu. 2020. Benchmarking and parameter sensitivity of physiological and vegetation dynamics using the Functionally Assembled Terrestrial Ecosystem Simulator (FATES) at Barro Colorado Island, Panama. *Biogeosciences* 17:3017-3044. doi: 10.5194/bg-17-3017-2020 [77]
62. McDowell, N. G., C. D. Allen, K. Anderson-Teixeira, B. H. Aukema, B. Bond-Lamberty, L. Chini, J. S. Clark, M. Dietze, C. Grossiord, A. Hanbury-Brown*, G. C. Hurtt, R. B. Jackson, D. J. Johnson, **L. Kueppers**, J. W. Lichstein, K. Ogle, B. Poulter, T. A. M. Pugh, R. Seidl, M. G. Turner, M. Uriarte, A. P. Walker, and C. Xu. 2020. Pervasive shifts in forest dynamics in a changing world. *Science* 368: eaaz9463. doi: 10.1126/science.aaz9463. [459]
61. Holm, J., R. Knox, Q. Zhu, R. A. Fisher, C. Koven, A. Lima, W. Riley, M. Longo, R. Negron-Juarez, A. Arujo, **L. M. Kueppers**, P. Moorcroft, N. Higuchi, and J. Q. Chambers. 2020. The Central Amazon biomass sink under current and future atmospheric CO₂: Predictions from big-leaf and demographic vegetation models. *Journal of Geophysical Research – Biogeosciences*, 125(3): e2019JG005500. doi: 10.1029/2019JG005500 [19]

60. Grossiord, C., B. Christoffersen, A. M. Alonso-Rodríguez, K. Anderson-Teixeira, H. Asbjornsen, L. M. T. Aparecido, Z. C. Berry, C. Baraloto, D. Bonal, I. Borrego, B. Burban, J. Q. Chambers, D. S. Christianson, M. Detto, B. Faybishenko, C. G. Fontes, C. Fortunel, B. O. Gimenez, K. J. Jardine, **L. Kueppers**, G. R. Miller, G. W. Moore, R. Negron-Juarez, C. Stahl, N. G. Swenson, V. Trotsiuk, C. Varadharajan, J. M. Warren, B. T. Wolfe, L. Wei, T. E. Wood, C. Xu, and N. G. McDowell. 2019. Precipitation mediates sap flux sensitivity to evaporative demand in the neotropics. *Oecologia*, 191: 519–530 doi: 10.1007/s00442-019-04513-x. [13]
59. Massoud, E. C., C. Xu, R. Fisher, R. Knox, A. Walker, S. Serbin, J. Holm, **L. M. Kueppers**, D. Ricciuto, L. Wei, D. Johnson, C. Koven, N. McDowell, and J. Vrugt. 2019. Identification of key parameters controlling demographically structured vegetation dynamics in a land surface model: CLM4.5(FATES). *Geoscientific Model Development*, 12: 4133–4164, doi: 10.5194/gmd-12-4133-2019. [26]
58. Song, J., S. Wan, S. Piao, A. K. Knapp, A. T. Classen, S. Vicca, P. Ciais, M. J. Hovenden, S. Leuzinger, C. Beier, P. Kardol, J. Xia, Q. Liu, J. Ru1, Z. Zhou, Y. Luo, D. Guo, J. A. Langley, J. Zscheischler, J. S. Dukes, J. Tang, J. Chen, K. S. Hofmockel, **L. M. Kueppers**, L. Rustad, L. Liu, M. D. Smith, P. H. Templer, R. Q. Thomas, R. J. Norby, R. P. Phillips, S. Niu, S. Fatichi, Y. Wang, D. Wang, L. Lei, J. Wang, X. Li, Q. Zhang, H. Han, P. Shao, X. Li, F. Su, B. Liu, F. Yang, G. Ma, G. Li, Y. Liu, Y. Liu, Z. Yang, K. Zhang, Y. Miao, M. Hu, C. Yan, A. Zhang, M. Zhong, Y. Hui, Y. Li, and M. Zheng. 2019. A meta-analysis of 1119 manipulative experiments on terrestrial carbon cycling responses to global change. *Nature Ecology and Evolution*, 3: 1309–1320. doi: 10.1038/s41559-019-0958-3. [245]
57. Brodersen, C., M. Germino, D. M. Johnson, K. Reinhardt, W. Smith, L. Resler, M. Bader, A. Sala, **L. Kueppers**, G. Broll, D. Cairns, K. Holtmeier, and G. Wieser. 2019. Seedling survival at timberlines critical to conifer mountain forest elevation and extent. *Frontiers in Forests and Global Change* 2:9, doi: 10.3389/ffgc.2019.00009 [35]
56. Mohan, J. E., S. Wadgyamar, D. E. Winkler, J. Anderson, P. Frankson, R. Hanifin, K. Benavides, **L. M. Kueppers** and J. Melillo. 2019. Plant Reproductive Fitness and Phenology Responses to Climate Warming: Results from Native Populations, Communities and Ecosystems. pp. 61-102 in *Ecosystem Consequences of Soil Warming: Microbes, Vegetation, Fauna and Soil Biogeochemistry*, J. Mohan, ed. [2]
55. *Winkler, D. E., K. C. Lubetkin*, A. A. Carrell*, M. D. Jabis*, Y. Yang, and **L. M. Kueppers**. 2019. Responses of alpine plant communities to climate warming, pp. 297-346 in *Ecosystem Consequences of Soil Warming: Microbes, Vegetation, Fauna and Soil Biogeochemistry*, J. Mohan, ed. [17]
54. Dickman, L. T., N. G. McDowell, C. Grossiord, A. D. Collins, B. T. Wolfe, M. Detto, S. J. Wright, J. A. Medina -Vega, D. Goodsman, A. Rogers, S. P. Serbin, J. Wu, K. S. Ely, S. T. Michaletz, C. Xu, **L. Kueppers**, and J. Q. Chambers. 2018. Homeostatic maintenance of non-structural carbohydrates during the 2015-2016 El Niño drought across a tropical forest precipitation gradient. *Plant, Cell and Environment*, doi: 10.1111/pce.13501 [29]
53. †Lu, Y., X. Yang, and **L. M. Kueppers**. 2018. Future crop yields and water productivity changes for Nebraska rainfed and irrigated crops. *Water International*, 43(6): 785-795, doi: 10.1080/02508060.2018.1516093. [1]
52. Winkler, D. E., R. J. Butz†, M. J. Germino, K. Reinhardt, and **L. M. Kueppers**. 2018. Snowmelt timing regulates community composition, phenology, and physiological

- performance of alpine plants. *Frontiers in Plant Science*, 9: 1140, doi: 10.3389/fpls.2018.01140. [46]
51. †Powell, T., C. Koven, B. Faybishenko, R. Fisher, D. Johnson, R. Knox, N. McDowell, R. Condit, S. Hubbell, S. J. Wright, J. Chambers, and **L. M. Kueppers**. 2018. Variation in hydroclimate sustains tropical forest biomass and promotes functional diversity. *New Phytologist*, 219(3): 932-946, doi: 10.1111/nph.15271. [34]
50. *Carper, D. L., A. A. Carrell*, **L. M. Kueppers**, and C. Frank. 2018. Bacterial endophyte communities in *Pinus flexilis* are structured by host age, tissue type, and environmental factors. *Plant and Soil*, 428(1), 335-352, doi: 10.1007/s11104-018-3682-x. [22]
49. Thompson, W., Y. Lu†, J. E. Campbell, S. Gerlt*, **L. M. Kueppers**, M. A. Snyder, and X. Yang*. 2018. Automatic responses of crop stocks and policies buffer climate change effects on crop markets and price volatility. *Ecological Economics*, 152: 98-105, 10.1016/j.ecolecon.2018.04.015. [6]
48. McDowell, N., C. D. Allen, K. Anderson-Teixeira, P. Brando, R. Brienen, J. Chambers, B. Christoffersen, S. Davies, C. Doughty, A. Duque, F. Espirito-Santo, R. Fisher, C. G. Fontes, D. Galbraith, D. Goodsman, C. Grossiord, H. Hartmann, J. Holm, D. J. Johnson, A. R. Kassim, M. Keller, C. Koven, **L. Kueppers**, T. Kumagai, Y. Malhi, S. M. McMahon, M. Mencuccini, P. Meir, P. Moorcroft, H. C. Muller-Landau, O. L. Phillips, T. Powell†, C. A. Sierra, J. Sperry, J. Warren, C. Xu, X. Xu. 2018. Drivers and mechanisms of tree mortality in moist tropical forests. *New Phytologist*, 219(3): 851-869, doi: 10.1111/nph.15027. [289]
47. Baker, E. A. G., J. L. Wegrzyn, U. U. Sezen, T. Falk, P. E. Maloney, D. R. Vogler, C. Jensen, J. Mitton, J. Wright, B. Knaus, H. Rai, R. Cronn, D. Gonzalez-Ibeas, H. A. Vasquez-Gross, R. A. Famula, J.-J. Liu, **L. M. Kueppers**, and D. B. Neale. 2018. Comparative transcriptomics among four white pine species. *G3: Genes, Genomes, Genetics*, doi: 10.1534/g3.118.200257. [17]
46. **Kueppers, L.M.**, A. Faist, S. Ferrenberg, C. Castanha, E. Conlisk, and J. Wolf*. 2017. Lab and field warming similarly advance germination date and limit germination rate for high and low elevation provenances of two widespread subalpine conifers. *Forests*. 8(11), 433, doi:10.3390/f8110433. [15]
45. †Conlisk, E., C. Castanha, M. Germino, T. Veblen, J. Smith*, A. Moyes†, and **L. M. Kueppers**. 2017. Seed origin and warming constrain lodgepole pine recruitment, slowing the pace of population range shifts. *Global Change Biology*, 24(1): 197-211, doi: 10.1111/gcb.13840 [19]
44. †Christianson, D., C. Varadharajan, B. Christoffersen†, M. Detto, B. Faybishenko, K. Jardine, R. Negron-Juarez, B. Gimenez, G. Pastorello, T. Powell†, J. Warren, B. Wolfe†, J. Chambers, **L. Kueppers**, N. McDowell, and D. Agarwal. 2017. A metadata reporting framework (FRAMES) for synthesis of Earth system science observations. *Ecological Informatics*, 42: 148-158, doi: 10.1016/j.ecoinf.2017.06.002 [9]
43. †Lazarus, B. E., C. Castanha, M. J. Germino, **L. M. Kueppers**, and A. B. Moyes†. 2018. Growth strategies and threshold responses to water deficit modulate effect of warming on tree seedlings from forest to alpine. *Journal of Ecology*, 106(2): 571-585, doi: 10.1111/1365-2745.12837. [38]
42. †Bagley, J., **L. M. Kueppers**, D. P. Billesbach, I. N. Williams†, S. C. Biraud, and M. S. Torn. 2017. The influence of land cover on surface energy partitioning and evaporative fraction regimes in the US Southern Great Plains. *Journal of Geophysical Research – Atmospheres*. 122(11): 5793-5807, doi: 10.1002/2017JD026740 [43]

41. *Lubetkin, K., A. L. Westerling, and **L. M. Kueppers**. 2017. Climate and landscape drive the pace and pattern of conifer encroachment into subalpine meadows. *Ecological Applications*, 27(6): 1876-1887, doi: 10.1002/eap.1574. [24]
40. †Lu Y., †Williams I.N., †Bagley J.E., Torn M.S. and **Kueppers L.M.** 2017. Representing winter wheat in the Community Land Model (version 4.5). *Geoscientific Model Development* 10(5): 1873-1888, doi:10.5194/gmd-10-1873-2017. [21]
39. †Lu, Y., K. Harding†, and **L. M. Kueppers**. 2017. Irrigation effects on land-atmosphere coupling strength in the United States. *Journal of Climate*, 30: 3671-3685, doi: <http://dx.doi.org/10.1175/JCLI-D-15-0706.1>. [19]
38. Negron-Juarez, R., H. Jenkins, C. Raupp, W. Riley, **L. Kueppers**, D. Magnabosco Marra, G. Ribeiro, M. Terezinha Monteiro, L. Candido, J. Chambers, and N. Higuchi. 2017. Windthrow variability in Central Amazonia. *Atmosphere*, 8(2): 28, doi:10.3390/atmos8020028. [26]
37. †Conlisk, E., C. Castanha, M. Germino, T. T. Veblen, J. Smith*, and **L. M. Kueppers**. 2017. Declines in low elevation subalpine tree populations outpace high elevation population expansion with warming. *Journal of Ecology*, 105(5): 1347–1357, doi:10.1111/1365-2745.12750. [46]
36. Holm, J., **L. Kueppers**, J. Chambers. 2017. Novel tropical forests: response to global change. *New Phytologist*, 213: 988–992, doi:10.1111/nph.14407. [3]
35. **Kueppers, L.M.**, E. Conlisk†, C. Castanha, A. Moyes†, M. Germino, P. de Valpine, M. S. Torn, and J. B. Mitton. 2017. Warming and provenance limit tree recruitment across and beyond the elevation range of subalpine forest. *Global Change Biology*, 23(6), 2383-2395, doi:10.1111/gcb.13561. [108]
34. Thompson, W., S. Gerlt*, J. E. Campbell, **L. M. Kueppers**, Y. Lu†, M. A. Snyder. 2017. A cost of tractability? Estimating climate change impacts using a single crop market understates impacts on market conditions and variability. *Applied Economic Perspectives and Policy*, 39(2):346-362, doi:10.1093/aep/ppw023. [4]
33. †Williams, I. N., Y. Lu†, **L. M. Kueppers**, W. J. Riley, S. Biraud, J. Bagley†, and M. S. Torn. 2016. Land-atmosphere coupling and climate prediction over the U.S. Southern Great Plains. *Journal of Geophysical Research – Atmospheres* 121(20): 12,125–12,144, doi:10.1002/2016JD025223. [45]
32. †Williams, I. N., W. J. Riley, **L. M. Kueppers**, M. S. Torn, and S. C. Biraud. 2016. Separating the effects of phenology and diffuse radiation on gross primary productivity in winter wheat. *Journal of Geophysical Research – Biogeosciences*, 121(7):1903-1915. doi:10.1002/2015JG003317. [26]
31. **Kueppers, L. M.**, C. M. Iversen, and C. D. Koven. 2016. Expanding use of plant trait observations in Earth system models, *Eos*, 97, doi:10.1029/2016EO049947.
30. *Winkler, D. E., K. J. Chapin*, and **L. M. Kueppers**. 2016. Soil moisture mediates alpine life form and community productivity responses to warming. *Ecology* 97(6): 1553-1563. doi:10.1890/15-1197.1. [53]
29. †Moyes, A. B., **L. M. Kueppers**, J. Pett-Ridge, D. Carper*, N. Vandehey, J. O’Neil, and A. C. Frank. 2016. Evidence for foliar endophytic nitrogen-fixation in a widely distributed subalpine conifer. *New Phytologist* 210:657-668 doi: 10.1111/nph.13850. Commentary by N. Wurzburger doi: 10.1111/nph.13925. [91]
28. *Fernández, M. H. Hamilton, and **L. M. Kueppers**. 2015. Back to the future: using historical climate variation to project near-term shifts in habitat suitable for coast redwood. *Global*

- Change Biology* 21(11):4141-4152 doi: 10.1111/gcb.13027. [18]
27. *Lu, Y. and **L. M. Kueppers**. 2015. Increased heat waves with loss of irrigation in the United States. *Environmental Research Letters*. 10: 064010, doi:10.1088/1748-9326/10/6/064010. [21]
 26. †Reinhardt, K., M. Germino, **L. M. Kueppers**, J.-C. Domec, and J. Mitton. 2015. Linking carbon and water relations to drought-induced mortality in *Pinus flexilis* seedlings. *Tree Physiology* 35:771-782 doi: 10.1093/treephys/tpv045. [29]
 25. †Moyes, A. B., M. J. Germino, **L. M. Kueppers**. 2015. Moisture rivals temperature in limiting photosynthesis by trees establishing beyond their cold-edge range limit under ambient and warmed conditions. *New Phytologist* 207:1005-1014 DOI: 10.1111/nph.13422. [63]
 24. *Lu, Y., J. Jin, and **L. M. Kueppers**. 2015. Crop growth and irrigation interact to influence surface fluxes in a regional climate-cropland model (WRF3.3-CLM4crop). *Climate Dynamics* 45:3347–3363 doi: 10.1007/s00382-015-2543-z. [51]
 23. *Meromy, L., N. P. Molotch, M. Williams, K. Musselman†, and **L. M. Kueppers**. 2015. Snowpack-climate manipulation using infrared heaters in subalpine forests of the Southern Rocky Mountains, USA. *Agricultural and Forest Meteorology* 203: 142-157 doi:10.1016/j.agrformet.2014.12.015. [17]
 22. Suding, K., E. Farrer†, A. King, **L. M. Kueppers**, and M. Spasojevic†. 2015. Vegetation change at high elevation: Scale-dependence and interactive effects on Niwot Ridge. *Plant Ecology & Diversity* 8:713-725. DOI: 10.1080/17550874.2015.1010189. [30]
 21. *Fernández, M., H. Hamilton, and **L. M. Kueppers**. 2013. Characterizing uncertainty in species distribution models derived from interpolated weather station data. *Ecosphere*. 4(5): 61. <http://dx.doi.org/10.1890/ES13-00049.1> [27]
 20. †Moyes, A. B., C. Castanha, M. Germino, and **L. M. Kueppers**. 2013. Warming and the dependence of limber pine (*Pinus flexilis*) establishment on summer soil moisture within and above its current elevation range. *Oecologia*. 171:271-282. doi: 10.1007/s00442-012-2410-0. [74]
 19. Castanha, C., M.S. Torn, M.J. Germino, *B. Weibel, and **L.M. Kueppers**. 2013. Conifer seedling recruitment across a forest-to-alpine tundra gradient and effects of provenance. *Plant Ecology and Diversity*. 6(3-4): 307-318. doi:10.1080/17550874.2012.716087. [35]
 18. *Lu, Y., and **L. M. Kueppers**. 2012. Surface energy partitioning over four dominant vegetation types across the United States in a coupled regional climate model (WRF3-CLM3.5). *Journal of Geophysical Research - Atmospheres*. 117: D06111. doi: 10.1029/2011JD016991 [32]
 17. Rutishauser, T., R. Stockli, J. Harte, and L. Kueppers. 2012. Climate change: Flowering in the greenhouse. *Nature* 485:448-449. [16]
 16. Barbour, E. and **L. M. Kueppers**. 2012. Conservation and management of ecological systems in a changing California. *Climatic Change*. 111(1): 135-163. doi: 10.1007/s10584-011-0246-y [10]
 15. **Kueppers, L. M.**, and M. A. Snyder. 2011. Influence of irrigated agriculture on diurnal surface energy and water fluxes, surface climate, and atmospheric circulation in California. *Climate Dynamics*. 38(5-6): 1017-1029. doi: 10.1007/s00382-011-1123-0. [68]
 14. †Reinhardt, K., C. Castanha, M. J. Germino, **L. M. Kueppers**. 2011. Ecophysiological variation in two provenances of *Pinus flexilis* seedlings across an elevation gradient from forest to alpine. *Tree Physiology* 31(6): 615-625. [44]

13. *Subin, Z. M., W. J. Riley, J. Jin, *D. S. Christianson, M. S. Torn, **L. M. Kueppers**. 2011. Ecosystem feedbacks to climate change in California: Development, testing, and analysis using a coupled regional atmosphere and land-surface model (WRF3-CLM3.5). *Earth Interactions*. 15(15): 1-38. doi: 10.1175/2010EI331.1. [43]
12. Luo, Y., J. M. Melillo, S. Niu, C. Beier, J. Clark, E. Davidson, J. Dukes, R. D. Evans, C. Field, C. Czimczik, M. Keller, B. Kimball, **L. Kueppers**, R. Norby, S. Pelini, E. Pendall, E. Rastetter, J. Six, M. Smith, M. G. Tjoelker, and M. S. Torn. 2011. Coordinated approaches to quantify long-term ecosystem dynamics in response to global change. *Global Change Biology*, 17(2): 843-854. doi: 10.1111/j.1365-2486.2010.02265.x. [144]
11. *Anderson, R., J. G. Canadell, J. T. Randerson, R. B. Jackson, B. A. Hungate, D. D. Baldocchi, G. A. Ban-Weiss, G. B. Bonan, K. Caldeira, L. Cao, N. S. Diffenbaugh, K. R. Gurney, **L. M. Kueppers**, B. E. Law, S. Luysaert, T. L. O'Halloran. 2011. Biophysical considerations in forestry for climate protection *Frontiers in Ecology and the Environment*, 9(3): 174-182. [229]
10. Jackson, R. B., J. T. Randerson, J. G. Canadell, *R. G. Anderson, R. Avissar, D. D. Baldocchi, G. B. Bonan, K. Caldeira, N. S. Diffenbaugh, C. B. Field, B. A. Hungate, E. G. Jobbágy, **L. M. Kueppers**, M. D. Noesetto, and D. E. Pataki. 2008. Protecting climate with forests. *Environmental Research Letters* 3: 044006. [288]
9. Lobell, D. B., C. J. Bonfils, **L. M. Kueppers**, and M. A. Snyder. 2008. Irrigation cooling effect on temperature and heat index extremes. *Geophysical Research Letters* 35: L09705. [119]
8. **Kueppers, L. M.**, M. A. Snyder, L. C. Sloan, D. Cayan, J. Jin, H. Kanamaru, M. Kanamitsu, N. L. Miller, M. Tyree, *H. Du, and B. Weare. 2008. Seasonal temperature responses to land-use change in the western United States. *Global and Planetary Change*, 60: 250-264 doi:10.1016/j.gloplacha.2007.1003.1005. [91]
7. **Kueppers, L. M.**, M. A. Snyder, and L. C. Sloan. 2007. Irrigation cooling effect: Regional climate forcing by land-use change, *Geophysical Research Letters*, 34, L03703, doi:10.1029/2006GL028679. [293]
6. **Kueppers, L. M.**, E. Zavaleta, B. Fulfrost, M. A. Snyder, and L. C. Sloan. 2006. Constrained range expansion and climate change assessments - The authors reply. *Frontiers in Ecology and the Environment* 4(4): 179. [1]
5. **Kueppers, L. M.**, and J. Harte. 2005. Subalpine forest carbon cycling: Short- and long-term influences of climate and species. *Ecological Applications* 15(6): 1984-1999. [42]
4. **Kueppers, L. M.**, M. A. Snyder, L. C. Sloan, E. S. Zavaleta, and B. Fulfrost. 2005. Modeled regional climate change and California endemic oak ranges. *Proceedings of the National Academy of Science* 102(45): 16281-16286. [117]
3. **Kueppers, L. M.**, J. Southon, P. Baer and J. Harte. 2004. Dead wood biomass and turnover time, measured by radiocarbon, along a subalpine elevation gradient. *Oecologia* 141(4): 641-651. [119]
2. Silver, W. L., **L. M. Kueppers**, A. E. Lugo, R. Ostertag, and V. Matzek. 2004. Carbon sequestration and plant community dynamics following reforestation of tropical pasture. *Ecological Applications* 14(4): 1115-1127. [100]
1. **Kueppers, L. M.**, P. Baer, J. Harte, B. Haya, L. E. Koteen, and M. E. Smith. 2004. A decision matrix approach to evaluating the impacts of land use activities undertaken to mitigate climate change. *Climatic Change* 63: 247-257. [14]

Reports and Other Publications (* student co-author)

11. Perspective retracted (due to paper retraction): **Kueppers, L. M.** Tree growth in sync. 2020. *Nature Ecology and Evolution*. 4, 1578–1579 doi: 10.1038/s41559-020-01326-7
10. *Jabis, M., D. Winkler, and **L. M. Kueppers**. 2020. Warming acts through earlier snowmelt to advance but not extend alpine community flowering. *Bulletin of the Ecological Society of America* 101(4): e01760.
9. U.S. DOE (**L. M. Kueppers** and J. Clark lead authors). 2018. *Disturbance and Vegetation Dynamics in Earth System Models*; Workshop Report, DOE/SC-0196. Office of Biological and Environmental Research, U.S. Department of Energy Office of Science. (<https://tes.science.energy.gov/files/vegetationdynamics.pdf>) (Co-lead author with J. Clark)
8. Koven, C., **L. M. Kueppers**, C. Iversen, P. Reich, and P. Thornton. 2016. *Expanding the use of plant trait observations and ecological theory in Earth system models*. Report of the workshop on “Trait Methods for Representing Ecosystem Change” U. S. Department of Energy.
7. **Kueppers, L. M.** and J. E. Campbell. 2009. *Potential effects of climate change on California’s bioenergy resources*. California Energy Commission Discussion Paper.
6. **Kueppers, L.M.**, W. Riley, J. Jin, Z. Subin*, D. Christianson*, M. Torn. 2009. *Ecosystem Feedbacks to Climate Change in California: Integrated Climate Forcing From Vegetation Redistribution*. California Energy Commission, Public Interest Energy Research Program. CEC-500-2009-075.
5. Barbour, E., and **L. Kueppers**. 2008. *Conservation and Management of Ecological Systems in a Changing California*. Public Policy Institute of California, <http://www.ppic.org/main/publication.asp?i=856>, 42pp.
4. Hanson P. J., A.T. Classen, **L. Kueppers**, Y. Luo, N.G. McDowell, J. Morris, A. Rogers, P. Thornton, R. Ceulemans, J. Dukes, M. Goulden, R. Jackson, A. Knapp, M. Kirschbaum, K. Lewin, M. MacCracken, J. Melillo, T. Ringler. 2008. *Ecosystem research: Understanding climate change impacts on ecosystems and feedbacks to the physical climate*. Report of the workshop on “Exploring Science Needs for the Next Generation of Climate Change and Elevated CO2 Experiments in Terrestrial Ecosystems” U. S. Department of Energy.
3. **Kueppers, L.M.**, M.S. Torn, and J. Harte 2007. *Quantifying Ecosystem Feedbacks to Climate Change: Observational Needs and Priorities*. A report to the Office of Biological and Environmental Research, Office of Science, U. S. Department of Energy.
2. **Kueppers, L.M.** 2005. Benefits of a regional climate model. *Science* 310: 1278-1279. [1]
1. Snyder, M. A., **L. M. Kueppers**, L. C. Sloan, D. Cayan, J. Jin, H. Kanamaru, M. Kanamitsu, N. L. Miller, M. Tyree, *H. Du, and B. Weare. 2006. *Regional Climate Effects of Irrigation and Urbanization in the Western United States: A Model Intercomparison*. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2006-031.

Invited Presentations

- | | |
|------|--|
| 2023 | CalFire Forest Health and Wildfire Research Scoping Workshop, Association for Fire Ecology Meeting, Monterey, CA (Dec)
Rocky Mountain Biological Laboratory, Gothic, CO |
| 2022 | Department of Natural Resources and Environmental Science, University of Nevada, Reno
Cary Institute of Ecosystem Studies, Millbrook, NY |

- Natural Disturbances and Forest Ecosystem Dynamics in a Changing World
Conference, Berchtesgaden, Germany
- 2020 Ecological Society of America 2020 Annual Meeting (virtual)
- 2019 International Association for Landscape Ecology World Congress, Milan, Italy
DOE BER Advisory Committee April Meeting, Gaithersburg, MD
Conservation Ecology Seminar, University of Michigan, Ann Arbor, MI
- 2018 Geography Graduate Group, UC Davis
DOE ESS PI Meeting, Potomac, MD
Department of Plant and Microbial Biology, University of Minnesota, Twin
Cities, MN
- 2017 Associated Students of the University of California Forum on Climate Change,
UC Berkeley
DOE ESS PI Meeting, Potomac, MD
Silver Lab, Department of Environmental Science, Policy and Management, UC
Berkeley
BioEPIC Seminar Series, Biosciences Division and Earth and Environmental
Sciences Area, Lawrence Berkeley National Laboratory
- 2016 Department of Ecology and Evolutionary Biology, University of Arizona, Tucson,
AZ
Ecology and Evolution Seminar, UC Davis, CA
OECD Workshop on Virtual Water in Agricultural Products: Quantification,
Limitations and Trade Policy, University of Nebraska, Lincoln, NE
Institute of Mountain Hazards and Environment, Chinese Academy of Sciences,
Chengdu, China
Community Earth System Model 21st Annual Workshop (Plenary), Breckenridge,
CO
DOE ESS PI Meeting, Potomac, MD
DOE BER Advisory Committee March 2016 Meeting, Gaithersburg, MD
Energy and Resources Group, University of California, Berkeley
- 2015 American Geophysical Union 2015 Fall Meeting (2 talks on different topics)
California EPA Workshop on Indicators of Climate Change in California,
Sacramento, CA
Energy and Resources Group, University of California, Berkeley
- 2014 American Geophysical Union 2014 Fall Meeting
Department of Biology, Penn State University
INTERFACE Workshop, Beijing, China
DOE PI Meeting, Potomac, MD
Department of Biology, University of Utah
- 2013 Landscape and Architecture and Environmental Planning Department, UC
Berkeley
Ecological Society of America 2013 Annual Meeting
DOE PI Meeting, Potomac, MD
- 2012 Energy and Resources Group, UC Berkeley
Department of Ecology and Evolutionary Biology, Ohio State University
Climate Sciences Department, Lawrence Berkeley National Laboratory
Central Rockies White Pine Health Working Group, Fort Collins, CO

- 2010 American Geophysical Union 2010 Fall Meeting
Duke University
California State University, Fresno
Lawrence Livermore National Laboratory
Ecological Society of America Annual Meeting
High-Five Symposium, University of Montana, Missoula
Department of Earth and Planetary Sciences, University of California, Santa Cruz
Department of Environmental Science, Policy and Management, University of California, Berkeley
- 2009 Mountain Research Station, University of Colorado
Annual Meeting of the International Association of Landscape Ecologists, Snowbird, Utah
Department of Biological Sciences Spring Colloquium, California State University, Stanislaus
National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara
- 2008 Fifth Annual California Climate Change Conference, Sacramento, California (poster given by W. J. Riley, Kueppers on leave).
- 2007 EPA Workshop: Climate Change Effects on Biological Indicators. Baltimore, Maryland.
- 2006 Dissertation Initiative for the Advancement of Climate Change Research, Pacific Grove, California (poster)
Department of Biology, San Diego State University
School of Natural Sciences, University of California, Merced
Environmental Change Initiative, Brown University
Huxley College of the Environment, Western Washington University
- 2005 Environmental Systems Seminar, University of California, Merced
Global Environmental Change and Biodiversity Workshop, Dourdan, France (poster)
- 2004 W. Silver lab seminar, University of California, Berkeley
Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory
EcoEvo Seminar, Department of Biological Sciences, Stanford University
- 2003 Department of Earth System Science, University of California, Irvine

Invited Workshops and Working Groups

- 2021 Co-chair of Aspen Global Change Institute workshop on *Forest Dynamics in the Anthropocene*, remote online
- 2018 Co-organizer of DOE workshop on *Disturbance and Vegetation Dynamics in Earth System Models*, Gaithersburg, MD.
- 2017-2018 NSF/NCEAS working group *CoRRE C2E (Community Responses to Resource Experiments - Communities to Ecosystems)*, Fort Collins, CO and Santa Barbara, CA
- 2015 NSF workshop *Identifying mechanisms driving treeline elevations*, McCall, Idaho.

- Co-organizer of DOE workshop on *Trait Methods for Representing Ecosystem Change*, Rockville, MD.
- 2014 NSF workshop *INTERFACE: Using results from global change experiments to inform land model development and calibration*, Beijing, China
- 2012 NSF workshop *Climate Change and Species Interactions*, Cary Institute for Ecosystem Studies, Millbrook, NY
- DOE workshop, *Strategies to Promote Integrated Experiment-Model Approaches to Terrestrial Ecosystem Study*, Bethesda, MD
- 2011 NSF workshop *INTERFACE: How Do We Improve Earth System Models: Integrating Earth System Models, Ecosystem Models, Experiments and Long-Term Data*, Captiva Island, FL
- 2009 DOE/NSF workshop *Long-term Global Change Experiments*, Washington, DC
- 2008-2010 NSF working group *Linking carbon storage in terrestrial ecosystems with other climate forcing agents: A synthesis allowing for effective carbon dioxide stabilization policies*, NCEAS, Santa Barbara, CA
- 2008 DOE workshop *Exploring Science Needs for the Next Generation of Climate Change and Elevated CO₂ Experiments in Terrestrial Ecosystems*, Washington, DC
- 2007 NSF/NERC/NCAR workshop *AIMES Young Scholars Network Workshop: Modelling Land-Use Decision making*, Bristol, England
- 2005 Co-organizer of DOE workshop *Observational Needs for Quantifying Ecosystem Feedbacks to Climate Change*, San Francisco, CA
- NSF symposium *Dissertation Initiative for the Advancement of Climate Change Research, DISCCRS II Symposium*, Asilomar, CA

Grants

Current (\$1.7M as lead PI)

- 2024-2027 NASA IDS, co-PI; PI P. Saide, other co-PI E. Ordway (UCB \$464,228)
- 2023-2026 Gordon and Betty Moore Foundation, co-PI; PI W. Hansen, other co-PIs P. Williams, A. Trugman, K. Bartowitz (UCB \$312,278)
- 2022-2025 DOE BER, PI; co-PIs M. Berkelhammer, B. Blonder, I. Breckheimer, T. Powell, E. Siirila-Woodburn, C. Still (\$1,000,000)
- 2021-2023 Gordon and Betty Moore Foundation, PI, (\$200,000)
- 2020-2024 CalFire, PI; co-PI John Battles, collaborator P. Buotte (\$499,660)
- 2014-2024 DOE BER, co-PI; PI J. Q. Chambers, other co-PIs D. Agarwal, S. Davies, R. Fisher, M. Keller, C. Koven, R. Leung, N. McDowell, R. Norby, A. Rogers, A. Walker, C. Xu (total \$73,100,000)

Completed (\$6.3M as lead PI)

- 2021-2022 LBNL Watershed Function SFA seed grant, PI, co-PIs E. Siirila-Woodburn, T. L. Powell (\$100,000)
- 2020-2022 LBNL LDRD, co-PI, PI C. Koven, other co-PI E. Siirila-Woodburn (\$200,000)
- 2018-2022 UCOP, co-PI; PI A. Hall, other co-PIs R. Fu, C. Xu, C. Koven, J. Randerson, M. Goulden, Y. Jin, M. Moritz, K. Reich (UCB \$540,510)
- 2015-2020 NSF Dimensions of Biodiversity, co-PI; PI A. C. Frank, other co-PI J. Pett-Ridge (total \$1,623,786)

2018-2020	LBNL Watershed Function SFA mini-grant, PI; collaborator T. Powell (\$165,000)
2012-2017	USDA-AFRI, co-PI; PI W. Thompson, other co-PIs J. E. Campbell, P. Zimmel, L. Sloan, M. Snyder, G. Knapek, J. Outlaw (UCM \$271,024, with J. E. Campbell)
2014-2017	DOE ASR, Sr. personnel; PI M. Torn (total \$2,098,000)
2007-2017	DOE BER, PI; co-PIs M. Torn, J. Harte, J. Mitton, M. Germino (total \$5,131,836)
2012-2015	LBNL-LDRD, PI (total \$834,256)
2013-2014	NSF-IOS, co-PI; PI A. C. Frank (total \$150,335)
2011-2012	UC Merced Graduate Research Council, PI; co-PI A. Westerling (\$9,997)
2010-2012	UC Merced Graduate Research Council, co-PI; PI A. C. Frank (\$9,200)
2009	California Energy Commission, UCOP-CIEE, PI; co-PI J. E. Campbell (\$10,000)
2008	Colorado Native Plant Society, PI; Collaborator R. Butz (\$1,000)
2007-2008	California Energy Commission, Public Interest Energy Research-Environmental Area, PI; co-PIs M. Torn, W. Riley (total \$74,992; UCM \$49,261)
2001-2002	Center for Accelerator Mass Spectrometry Grant, Lawrence Livermore National Laboratory (\$5,400 + ~80 radiocarbon analyses worth ~\$24,000)
1998, 2002	Grant-in-Aid of dissertation research, Sigma Xi, Berkeley Chapter (\$750)
1999-2001	Environmental Defense Minigrant, Environmental Defense, NY, Collaborator; PI J. Harte (\$15,000)

Professional Development

2018	Engaging Environmental Justice in Geoscience Courses, InTeGrate Workshop at AGU, Washington DC
2015-2016	2016 Leadership Development Program for Emerging Leaders, Center for Executive Education, UC Berkeley
2007	Early Career Geoscience Faculty: Teaching, Research, and Managing Your Career, On the Cutting Edge, College of William and Mary

Teaching

<i>Course (lower division, upper division or graduate)</i>	<i># students</i>	<i>Institution</i>	<i>Term</i>
Quantitative Aspects of Global Environmental Problems (ud/g), 4 units	46-87	UC Berkeley	Spring 2017-2023
Natural Climate Solutions and Global Change (g), 2 units	13-17	UC Berkeley	Fall 2021-2023
Terrestrial Ecosystem Disturbance and Resilience under Climate Change (g), 2 units	~9	UC Berkeley	Fall 2018, 2019
Coordinator and Instructor, Tools of the Trade (g), 2 units	11	UC Berkeley	Fall 2018
Guest Lecturer, Global Warming (ld)	~60	UC Berkeley	Fall 2018
Guest Lecturer, Ecology and Society (ud)	12-25	UC Berkeley	Summer 2017-2019, 2021-2023, Fall 2014

Alpine Plant Ecology and Climate Change (g), 3 units	3	UC Merced	Spring 2012
Environmental Science and Policy (ud), 4 units (co-taught with Tony Westerling)	17-73	UC Merced	Spring 2007, 2010- 2012
Ecosystems of California (ld), 4 units	49-93	UC Merced	Spring 2008, 2011, 2012
Terrestrial Ecosystem Ecology (ud/g), 3 units	3-18	UC Merced	Spring 2007, 2010, Fall 2011
Writing a Research Proposal (g), 2 units	15	UC Merced	Fall 2009
Climate Change and Biodiversity (executive leadership program)	24-27	National Parks Institute	April 2010, 2011
Active Service Modified Duties		UC Merced	Spring 2009, Fall 2008
Rocky Mountain Ecosystems and Climate Change	4	Rocky Mountain Biological Laboratory	Summer 2006
Guest Lecturer, Department of Environmental Science		Western Washington University	Spring 2006
Guest Lecturer, Environmental Studies Department		UC Santa Cruz	2004, 2005

Visiting Scholars Hosted

Polly Buotte 2022-2023, Earth Shot Labs

Yan Bai 2018-2019 PhD student, Beijing Normal University, currently Research Fellow, Lanzhou University

Matthew Goldklang 2018 MS Student, University of Copenhagen, currently Climate Scientist at Man Numeric

Kaiguang Zhao 2011 PhD student, Duke University, currently Assistant Professor, Ohio State University

Scientists Supervised

Marcos Longo 2021-present Research Scientist, Lawrence Berkeley National Laboratory

Polly Buotte 2021-2022, 2023-present Assistant Project Scientist, UC Berkeley, (and Planetary Ecologist, Earth Shot Labs)

Postdoctoral Scholars Mentored

Xiulin Gao 2021-present (co-advised with Charlie Koven)

Barbara Bomfim 2019-2023 Currently Conservation Specialist, WWF- Brasil

Polly Buotte 2019-2021 Currently Assistant Project Scientist, UC Berkeley and Planetary Ecologist, Earth Shot Labs

Thomas Powell 2015-2021 Currently Assistant Professor, College of the South (Sewanee)

Justin Bagley 2015-2017 Currently Energy Modeling Engineer at Carbon Lighthouse

Erin Conlisk 2014-2016 Currently Senior Scientist at Conservation Science Institute and Senior Researcher at UC Riverside

Yaqiong Lu 2013-2015 Currently Research Scientist, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences
Andrew Moyes 2010-2015 Currently Senior Scientific Engineering Associate, Lawrence Berkeley National Laboratory
Ramona Butz 2007-2009 Currently Northern Province Ecologist for the Klamath, Mendocino, Shasta-Trinity, and Six Rivers National Forests, U.S. Forest Service

PhD and MS Students

Sean Brown, 2023-present, MS student, Energy and Resources Group, UC Berkeley
Nicole Lau, 2022-present, MS student, Energy and Resources Group, UC Berkeley
Sasha Figel, 2022-present, MS student, Energy and Resources Group, UC Berkeley
Jessica Katz, 2020-present, 2020 MS, PhD candidate, Energy and Resources Group, UC Berkeley
Julia Longmate, 2019-present, PhD student Energy and Resources Group, UC Berkeley
Hikari Murayama, 2019-present, 2021 MS, PhD student, Energy and Resources Group, UC Berkeley
Marshall Worsham, 2019-present, 2020 MS, PhD candidate, Energy and Resources Group, UC Berkeley
Rachel Ward, 2018-present, 2020 MS, PhD candidate, Energy and Resources Group, UC Berkeley
Váleri Vásquez, (co-advised with J. Marshall) 2023 PhD, Energy and Resources Group, UC Berkeley, Currently postdoc, Stanford University
Adam Hanbury-Brown, 2018 MS, 2022 PhD, Energy and Resources Group, UC Berkeley, Currently postdoc, UC Davis and Berkeley Lab
Oliver James, 2021, MA/MPP, Energy and Resources Group/Graduate School of Public Policy, UC Berkeley, Currently research specialist, Princeton University
Hilary Henry, 2020, MS/MPP, Energy and Resources Group/Graduate School of Public Policy, UC Berkeley, Currently regional representative for Senator Michael Bennet
Dianne Quiroz, 2019, MS, Energy and Resources Group, UC Berkeley, Currently veterinary student, Oregon State University
Meredith Jabis, (co-advised with J. Harte) 2018, PhD, Environmental Science, Policy and Management, UC Berkeley, Currently Scientist, Inyo County Water Department
Kaitlin Lubetkin (co-advised with A.L. Westerling) 2015, PhD, Environmental Systems, UC Merced, Currently data scientist for the BLM through the Great Basin Institute
Yaqiong Lu 2013, PhD, Environmental Systems, UC Merced, Currently Research Scientist, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences
Miguel Fernández (co-advised with H. Hamilton) 2013, PhD, Environmental Systems, UC Merced, Currently postdoc iDiv, Germany
Daniel Winkler 2013, MS, Environmental Systems, UC Merced, Currently Research Ecologist, USGS
Jennifer Wolf 2011, MS, Environmental Systems, UC Merced

Dissertation or masters committee member: Micah Elias (PhD candidate, UC Berkeley), Sophie Ruehr (PhD candidate, UC Berkeley), Marianne Cowherd (PhD candidate, UC Berkeley), Javiera Canales (MS 2023, UC Berkeley), James Kupihea (PhD 2022, UC Merced), Bodie Cabiyo (PhD 2022, UC Berkeley), Allegra Mayer (PhD 2021, UC Berkeley), Michelle Simms (MA 2021, UC Berkeley), Nancy Freitas (MS 2020, UC Berkeley), Jessica Katz (MS 2020, UC Berkeley), Brenna Castro Carlson (MLA 2020, UC Berkeley), Zeke Hausfather (PhD 2019, UC Berkeley), Alisa Keyser (PhD 2016, UC Merced), Danielle Christianson (PhD 2016, UC Berkeley), Alyssa Carrell (2014 PhD, UC Merced), Chelsea Carey (PhD 2014, UC Merced), Steven Lee (MS 2013, UC Merced), Andrew Zumkehr (MS 2013, UC Merced), Xianyu Yang (MS 2012, UC Merced), Christine Lamana (2012 PhD, University of Arizona), Gyami Shrestha (2011 PhD, UC Merced), Jennifer Petrzela (2011 MS, University of Colorado, Boulder), Joan Lehman (2010 MS, UC Merced), Patrick Rahilly (2008 MS, UC Merced).

Qualifying exam committee member: Charlotte Kwong (PhD candidate, UC Berkeley), Marianne Cowherd (PhD candidate, UC Berkeley), Sophie Ruehr (PhD candidate, UC Berkeley), Carlos Wang (PhD candidate, UC Berkeley), James Kupihea (PhD candidate, UC Merced), Bodie Cabiyo (PhD 2022, UC Berkeley), Matthew Kling (PhD 2020, UC Berkeley), Lauren Schiebelhut (PhD 2016, UC Merced), Alisa Keyser (PhD 2016, UC Merced), Alyssa Carrell (2014 PhD, UC Merced), Chelsea Carey (PhD 2014, UC Merced), Christine Lamana (2012 PhD, University of Arizona), Gyami Shrestha (2011 PhD, UC Merced).

Undergraduate Research Students (since 2008)

Carmen Searles, 2023, UC Berkeley undergraduate researcher
Jacob Budoff-Corujo, 2023, RMBL REU student
Nishita Dashpute 2022-2023, UC Berkeley URAP program student
Akshay Patel, 2022-2023, UC Berkeley URAP program and Honors student
Quinn Albert, 2022-2023, UC Berkeley CNR SPUR program and Honors student (currently US Forest Service)
Sofia Swift, 2022, UC Berkeley CNR SPUR program student
Dellena Bloom, 2021, LBNL SULI program student (currently PhD student, University of Florida)
Sarah Hetteema, 2020-2021, UC Berkeley CNR SPUR program student (currently NASA Develop scholar)
Michael Xiao, 2020-2021, UC Berkeley CNR SPUR program student
Brian Fulk, 2020, UC Berkeley undergraduate researcher
Melissa Jaffe, 2020, UC Berkeley undergraduate researcher (MS 2022, University of Montana; currently Spatial Wildfire Analyst, Pyrologix)
Emma Centeno, 2020, UC Berkeley undergraduate researcher
Elmera Azadpour, 2020, LBNL SULI program student (MS 2022, UC Santa Barbara; currently Data Scientist/Data Visualization Specialist, USGS)
Meirah Williamson, 2018, LBNL SULI program student (MS 2021, University of Florida)
Sophia Bagshaw, 2018-2019, UC Berkeley CNR SPUR program student (currently research assistant UC Davis)
Dianne Quiroz, 2015, LBNL SULI program student (MS, UC Berkeley 2019)
Lucille Watkins, 2015, LBNL SULI program student (MS 2018, University of Florida)

Rick Thomas, 2014, LBNL SULI program student (MS 2017, currently CEO, BranchOut)
Greg Vose, 2013, UC Merced REU Program student (PhD 2021, UC Irvine)
Alex Lau, 2012-2013, Cognitive Science graduate, UC Merced (currently at CBF Electric)
Melanie Wiederhold, 2012, University of Colorado REU Program student
Alan Hong, 2010-2012, Earth Systems Science graduate, UC Merced
Ana Becerril, 2011, Earth Systems Science graduate, UC Merced (currently staff, UC Merced)
Daniella Rodriguez, 2010, University of Colorado REU Program student
Renee Rozaieski, 2010, University of Colorado REU Program student (currently at Merion Mercy Academy)
Marc Wasserman, 2010, UC Merced REU Program student (currently at CLEAResult)
Ruth Xochihua, 2009-2010, Earth Systems Science graduate, UC Merced (currently at NSF International)
Alyssa Carrell, 2008-2009, Biological Sciences graduate, UC Merced (2014 PhD, UC Merced; currently technical staff Oak Ridge National Laboratory)

Professional Service

2020-2023 Member-at-Large, Section on Biological Sciences, American Association for the Advancement of Science
2015-2022 Member, Community Earth System Model Advisory Board
2019 American Geophysical Union 2019 Fall Meeting, San Francisco, CA. Session Co-chair, *Blue and Green Water in the Mountains: Water Supply, Extreme Events, and Ecological Responses in Snow and Glacier-fed Catchments*.
2016 Ecological Society of America, 2016 Annual Meeting, Fort Lauderdale, FL. Session Co-organizer, *Novel Tropical Ecosystems: Response to Global Change*. American Geophysical Union 2016 Fall Meeting, San Francisco, CA. Session Co-chair, *Blue and Green Water in the Mountains: Water Supply, Extreme Events, and Ecological Responses in Snow and Glacier-fed Catchments*.
2013-2015 Co-organizer Alpine and Arctic Treeline Ecotone Network (with Connie Millar, USFS, and David Cairns, TAMU)
2015 Ecological Society of America, 2015 Annual Meeting, Baltimore, MD. Session Co-organizer, *Ecology in Earth System Models: What's Missing and Why is it Important?*
2014 Ecological Society of America, 2014 Annual Meeting, Sacramento, CA. Session Co-organizer, *Advancing Knowledge of Alpine and Arctic Treeline Ecotones and Responses to Environmental Change*
2012 Panelist for NSF CRI EaSM 2 special solicitation, Washington, DC
Panelist for DOE review of Oak Ridge National Laboratory Scientific Focus Area in Terrestrial Ecosystem Sciences, Washington, DC
2009 Panelist for DOE Early Career Research Program 2010 Climate and Environmental Sciences Division, Washington DC
Panelist on NSF Ecosystem DDIG Advisory Panel, Washington, DC
2007-2009 American Geophysical Union, Biogeosciences Fall Meeting Program Committee
2007 American Geophysical Union 2007 Fall Meeting, San Francisco, CA. Session Co-chair *Including Land Use and Land Cover Change in Earth System Models*

- 2006 American Geophysical Union 2006 Fall Meeting, San Francisco, CA. Session Co-chair *Modeling and Observation of Ecosystem, Carbon Cycle, and Energy System Feedbacks in the Earth's Climate*
- 2004 Climate, Community & Biodiversity Alliance, Washington, DC. Reviewed draft Project Design Standards for identifying land-use carbon market projects with social and ecological co-benefits.
- 2000, 2005 Sound Science Initiative, Union of Concerned Scientists, Cambridge, MA. Reviewed draft report on Forest Carbon Storage as an Ecosystem Service. Met with California legislators during Climate Science Education Day, Sacramento, CA
- 2000 Director Search Committee, Rocky Mountain Biological Laboratory

Institutional Service

- 2020-present Equity Advisor and Chair, Diversity Committee, Energy and Resources Group, UC Berkeley
- 2018-present Faculty organizer, weekly Colloquium for Energy and Resources Group, UC Berkeley (Fall only since 2022)
- 2017-present Faculty Lead, Minor in Energy and Resources, UC Berkeley
- 2022-2023 Chair, Graduate Admissions Committee, Energy and Resources Group, UC Berkeley
- 2020-2022 Member, Rausser College of Natural Resources Executive Committee, UC Berkeley
- 2021-2022 Forest Science and Climate Change Faculty Search Committee, UC Berkeley
- 2020-2021 RCNR Professional Masters Degree Development Committee, UC Berkeley
- 2020-2021 Climate Equity and Environmental Justice Faculty Search Committee (senior hire), UC Berkeley
- 2020 Chair, Vegetation Dynamics Research Scientist Search Committee, LBNL
- 2019-2020 Sustainability and Equity Faculty Search Committee, UC Berkeley
- 2016 Climate and Ecosystem Sciences Division Research Grand Challenges Committee, Dynamic Vegetation Modeler Research Scientist Search Committee, Environmental Microbial Genomics Research Scientist Search Committee, LBNL
- 2014, 2016 Early Career Grant Committee, Earth Sciences Division, LBNL
- 2015 Earth and Environmental Science Area “Eco-Climate” Division Working Group, Tropical Ecosystem Science Research Scientist Search Committee, LBNL
- 2011-2012 Admissions Committee, Environmental Systems graduate program, UC Merced
- 2009-2012 Earth Systems Science undergraduate degree program faculty lead, UC Merced
- 2009-2012 Ad hoc Working Group on Environmental Majors and Minors, UC Merced
- 2008-2012 UC Merced Representative on the White Mountain Research Station Advisory Committee
- 2008-2012 Faculty lead (joint with M. Sprague until 2010), El Capitan High Performance Computing Cluster, UC Merced
- 2007-2012 UC Merced Representative to the California Cooperative Ecosystems Study Unit
- 2010-2011 Ecology Faculty Search Committee, UC Merced
- 2010 Participation in Preview Day on behalf of the Earth Systems Science major, UC Merced
- 2008-2010 Chancellor’s Advisory Committee on the Status of Women, UC Merced

2009 Undergraduate Council, UC Merced
2008-2009 Ecology Search Committee, UC Merced
2007-2009 Natural Sciences Curriculum Committee, UC Merced
2008 Chair, Soil Biogeochemistry Search Committee, UC Merced
2008 Chair, Soil Physics Search Committee, UC Merced
2007-2008 Joint Ecology Search Committee (3 positions), UC Merced
2006-2007 Microbial Ecology Search Committee, UC Merced
2006-2007 Natural Sciences Academic Resource and Planning Committee, UC Merced

Public Service and Media (*incomplete*)

2023-present Member, California AB1757 Natural and Working Lands Expert Advisory Committee
2021-present Member, Science Advisory Panel of the California Wildfire and Forest Resilience Task Force
2020-present Founder and member of the Board of Directors of the Climate and Wildfire Institute, a non-profit research-to-solutions collaborative
2018-present Resource for media inquiries on climate change impacts in Western ecosystems and tropical forests, including 2021 KQED interview with Brian Watt regarding forthcoming IPCC Sixth Assessment Report by Working Group I
2021 Moderator, Climate and Lands Advisory Panel for California Natural Resources Agency
2018 Technical Review Committee for Fourth California Climate Change Assessment Summary Report
Guest speaker, Building Efficiency for a Sustainable Tomorrow (BEST) Center Annual Institute for community college instructors from across the nation
2017 KVPR coverage of study reporting climate drivers of tree encroachment into Sierra Nevada meadows (<http://kvpr.org/post/uc-merced-research-suggests-meadows-sierra-nevada-are-disappearing>)
2006-2017 UC Merced Faculty Expert
2015 Science in the Theater. Gave one of five scientific presentations to the public at Berkeley Repertory Theater event organized by Berkeley Lab
2011-2012 Secretary and Founding member, Sierra Foothill Charter School - a science and sustainability focused K-8 Charter School in Catheys Valley, CA
2011 DeSTRESS online media. Climate scientist featured in open-licensed educational video on uncertainty and climate change for Economics, Geography, Sociology and Politics students (<http://media.streamlearn.com/video/30208262>).
BBC Radio. Feature piece on Alpine Treeline Warming Experiment.
Crested Butte Magazine. Feature article on GLORIA alpine ecology project
Sierra Nevada Research Institute Symposium. Presentation on species ranges shifts and climate change.
Robert Fore Excellence in Education, Yosemite National Park. Presentation to local high school science teachers regarding climate change and ecological consequences.
2010 RMBL Exploration Experiences Climate Change Tour. Spoke with visitors to the field research station on an organized hike regarding climate change and climate and ecology research.

- KVPT television. Guest climate scientist on a climate change episode of *Great Valley*, a taped half hour informational program.
Denver Post interview on subalpine and alpine species range shifts with climate change (article reprinted in Contra Costa Times).
- 2009 KPFA Radio interview on climate change
Nature News article on new DOE funded warming experiments
- 2007 ScienceNOW, KERN and KXJZ (NPR) Radio, Merced Sun-Star, Fresno Bee, and others. Provided interviews for radio, newspaper, and online outlets on the climate impacts of irrigated agriculture in California.
- 2006 Co-mentor for two Lawrence Berkeley National Laboratory K-12 Teacher Interns
- 2005-2006 KQED (NPR), KGO (ABC), and BBC Radio, San Jose Mercury News. Provided interviews on climate change and oak habitat shifts in California, and on forest carbon cycle feedbacks to climate change in the Colorado Rocky Mountains.
- 2005 Eyewitness News, KPIX (CBS), San Francisco, CA. Television interview on climate change and oak habitat shifts in California
- 2002 Nature Notes, KBUT, Crested Butte, CO. One hour radio interview on climate change and forest ecosystems in the Rocky Mountains.

Reviewing (manuscripts, proposals, applications)

Nature; Science; PNAS; Global Change Biology; Ecology Letters; Nature Ecology and Evolution; New Phytologist; Functional Ecology; Ecology; Ecological Applications; Oecologia; Oikos; Ecosystems; Plant Ecology; Plant Ecology and Diversity; Arctic, Antarctic and Alpine Research; Forests; Journal of Arid Environments
Geophysical Research Letters, Environmental Research Letters, Climatic Change Letters, Climate Dynamics, Journal of Geophysical Research – Atmospheres, Journal of Climate, Global Biogeochemical Cycles, Water Resources Research, Journal of Hydrometeorology, Radiocarbon

Book chapter in *Ecosystems of California*, H. Mooney and E. Zavaleta, eds.

NSF (Atmospheric Sciences, Environmental Biology, Ocean Sciences, Office of Polar Programs), USDA AFRI, DOE, California PIER Program, Netherlands Research Organization, Austrian Science Fund

DISCCRS V Workshop Applications, White Mountain Research Station Student Grants, Rocky Mountain Biological Laboratory Snyder Fellowship.

Professional Memberships

American Association for the Advancement of Science, American Geophysical Union, Ecological Society of America, Rocky Mountain Biological Laboratory