

Grace C Wu

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climate change mitigation | conservation science | renewable energy siting

EDUCATION

UNIVERSITY OF CALIFORNIA AT BERKELEY | PHD IN ENERGY AND RESOURCES

2013 - 2018 | Berkeley, CA, USA

Dissertation Committee: **Margaret Torn**, **Duncan Callaway**, **Jeff Chambers**

Dissertation: **Land Use in Renewable Energy Planning**

UNIVERSITY OF CALIFORNIA AT BERKELEY | M.S. IN ENERGY AND RESOURCES

2011 - 2013 | Berkeley, CA, USA

UNIVERSITY OF CAMBRIDGE | M.PHIL. IN ZOOLOGY

2008 - 2009 | Cambridge, England

Emphasis in Evolutionary Genetics and Bioinformatics • Adviser: **Chris Jiggins**

POMONA COLLEGE | B.A. IN BIOLOGY, MINOR IN HISTORY

2004 - 2008 | Claremont, California, USA

Magna Cum Laude • Phi Beta Kappa • Advisers: Jonathan Wright, Angelina Chinn, Char Miller

ACADEMIC APPOINTMENTS

ASSISTANT PROFESSOR | ENVIRONMENTAL STUDIES PROGRAM, UNIVERSITY OF CALIFORNIA SANTA BARBARA

07/2021 - present

DAVID H. SMITH CONSERVATION RESEARCH FELLOW | THE NATURE CONSERVANCY, NCEAS

01/2019 - 06/2021 | Santa Barbara, CA

UNIVERSITY OF CALIFORNIA PRESIDENT'S POSTDOCTORAL FELLOW | UNIVERSITY OF CALIFORNIA, DAVIS

08/2018 - 01/2019 | Davis, CA

AWARDS AND GRANTS

2025-27	\$2.5 million (\$1 million for UCSB)	Co-I on Dept of Energy SEEDS4 grant
2024-25	\$360k (\$149k for UCSB)	Co-PI on Washington Commerce Climate Action Agrivoltaics grant
2023-24	\$300k (\$92k for UCSB)	Co-PI on Platform for Agriculture and Climate Transformation Grant
2023-25	\$2.8 million (\$761k for UCSB)	Co-I on UC Climate Action Grant
2020-23	\$1 million (\$100k for G.Wu)	Co-I on Power of Place (TNC), Spitzer Foundation
2020-22	\$262k USD (incl workshop costs)	Co-PI on Resilient Waters Grant extension, UK DFID
2019-21	\$250k GBP; GW: \$30k USD	Co-PI on Energy and Economic Growth Programme Grant, UK DFID
2019	\$20k	Deep Decarbonization Action Plan, SDSN
2019	2 yrs of salary, \$40,000 research	David H. Smith Conservation Postdoctoral Fellowship
2018	1 yr of salary, \$4,000 research	UC President's Postdoctoral Fellowship (accepted 5 months)
2017	NA	Spherical Cow Award for Service, Energy and Resources Group
2016	\$40,000	Philomathia Scholarship for Environmental Sciences (2016-2018)
2015	\$4,000	Co-I on Synberc Expanding Potential, Diversity in STEM grant
2011	3 years of stipend, fees	National Science Foundation (NSF) Graduate Research Fellowship
2011	2 years of stipend, fees	Berkeley Graduate Fellowship
2008	Fully supported MPhil	Downing Scholarship for Graduate Studies at University of Cambridge
2008	\$5,000	Sherwood Heiser Scholarship for Graduate Studies
2008	\$500	Vaile Prize for highest honors awarded by Pomona College Biology
2007	1 summer of support	Rose Hills Foundation undergraduate research scholarship
2007	\$11,000	Barry M. Goldwater Scholarship for Excellence in Science

PUBLICATIONS

= authors contributed equally

* corresponding author

SUBMITTED

2. **Wu, G.C.*** Y. Min, R. Deshmukh, P. Cartwright, J. DeCesaro, D. Kerstan, D. Somasundaram, H. Strecker. "Factors shaping the siting of utility-scale solar and wind projects in the United States".
1. Min, Y., S. Patel, J. Rand, and **G.C. Wu** . "From Legacy to landscape: Evolving siting trends of utility-scale solar power in the U.S"

UNDER REVIEW

7. C. Brock, P.R. Roehrdanz, T. Beringer, B.J. Enquist, A.E. Frazier, J.A. Johnson, C.M. Kennedy, J. Kiesecker, A.E. Larsen, R. Loyola, P.A. Marquet, R. Neugarten, J.R. Oakleaf, A. Roopsind, R. Schuster, D. R. Williams, **G.C. Wu** , A. Zvoleff, and L. Hannah. "Balancing land use for conservation, agriculture, and renewable energy." *Nature Communications - revise and resubmit*
6. Gonzales, C., H. Froehlich, **G.C. Wu** . "Finding Common Ground: Assessing the Co-location Potential of California's Blue Food and Clean Energy Sectors" *Ocean and Coastal Management - revise and resubmit*
5. Zhu, Z., H. Mao, R. Yu, A. Botterud, M.R. Davidson, X. Lu, Y. Qin, B. Su, **G.C. Wu** , Y. Zhou, X. Zhang, X. Zhang, and D. Zhang. "Integrated Planning of Net-Zero Power Systems for All". *Nature Energy - revise and resubmit*
4. A. Covey, R. Pupa, M. Lai, A. Gole, N. Randazzo, B. Lee, S. Litvin, S. MacGregor, L. Mau, E. Stone, Y. Xue, E. Takekawa, M. Huy, **G.C. Wu** , R. Deshmukh. "Empirical estimates of installed capacity density for solar photovoltaic and onshore and offshore wind power plants". *Environmental Research: Infrastructure and Sustainability - revise and resubmit*
3. Min, Y., **G.C. Wu** . "Impacts of distributed energy resource (DER) adoption on U.S. residential energy consumption and expenditures". *Nature Communications - In review*
2. Min, Y., **G.C. Wu** . "From single to co-adoption of distributed energy resources (DERs): Household traits, regional drivers, and grid demand outcomes in the U.S." *Nature Energy - In review*
1. Grundel, R., A. Carlile, T.M. Neeson, **G.C. Wu** , J.D.K. Dzurisin, J.J. Hellmann. "Snow cover as protection against lethal temperatures for overwintering eggs of the Karner blue butterfly." *PloS One - In review*

PEER-REVIEWED JOURNAL ARTICLES

26. Gathrid, S., J. Wayland, S. Wayland, R. Deshmukh, **G.C. Wu*** . [2025. Strategies to accelerate US coal power phase-out using contextual retirement vulnerabilities](https://www.nature.com/articles/s41560-025-01871-0) . *Nature Energy* [under embargo until Oct 23, 2025] <https://www.nature.com/articles/s41560-025-01871-0>
 - Gathrid, S. and **G.C. Wu** "Targeted strategies for accelerating US coal plant retirements". *Nature Energy - Research Briefing*
25. Levin, M.O., D. Condon, N.Z. Krasner, E. Forester, C.C. Holmes, B.L. Bateman, A. Delach, J.R. Ennen, E.L. Kalies, R. Kays, J.E. Lovich, A.B. Smith, G.C. Wu, R.R. Hernandez. [2025. Bibliographic synthesis of biodiversity-relevant criteria for solar energy siting](#) . *Renewable and Sustainable Energy Reviews*.
24. **Wu, G.C.*=** , R. Deshmukh=, A. Trainor, A. Uppal, A.F.M. Kamal Chowdhury, E. Martin, J. Higgins, A. Mileva, K. Ndhlukula. [2024. Avoiding ecological and social impacts in achieving a low carbon electricity system for Southern Africa](#). *Nature Communications*
23. Bristow, L.V., R. Grundel, J. Dzurisin, **G.C. Wu** , Y. Li, A. Hildreth, J.J. Hellmann. [2024. Warming experiments test the sensitivity of an endangered butterfly across life history stages](#). *Insect Conservation*
22. Mosnier, A., Javalera-Rincon, V., Jones, S.K., Andrew, R., Bai, Z., Baker, J., Basnet Kumar, S., Boer, R., Chavarro, J., Costa, W., Daloz, A.S., DeClerck, F.A., Diaz, M., Douzal, C., Howe Fan, A.C., Fetzter, I., Frank, F., Gonzalez-Abraham, C.E., Habiburrachman, A.H.F., Immanuel, G., Harrison, P., Imanirareba, D., Jha, C.K., Jin, X., Ghosh, R.K., Leach, N., Lehtonen, H., Lotze-Campen, H., Low, W.S., Marcos-Martinez, R., McCord, G.C., Molla, K.G., Monjeau, A., Navarro Garcia, J., Neubauer, R., Obersteiner, M., Olguin, M., Orduña-Cabrera, F., Pena, A., Pérez-Guzmán, K., Potashnikov, V., Rämö, J., Ramos, F.M., Rasche, L., Gallardo, R.R., Schmidt-Traub, G., Selomane, O., Singh, V., Smith, A., Soterroni, A., Sperling, F., Steinhäuser, J., Stevanovic, M., Stokov, A., Thomson, M.J., van Oort, B., Vittis, Y., Wade, C., Winarni, N.L., Woldeyes, F.B., **Wu, G.C.** , Zerriffi, H., [2023. A decentralized approach to model national and global food and land use systems](#). *Environmental Research Letters* <https://doi.org/10.1088/1748-9326/acc044>
21. **Wu, G.C.*** , R. Jones, E. Leslie, J. Williams, A. Pascale, E. Brand, S. Parker, B. Cohen, J. Prochnik, J. Fargione, M. Batres, M. Gleason, M. Schindel, C. Stanley. [2023. Minimizing conservation impacts of net zero energy systems in the western U.S.](#) *Proceedings of the National Academy of Sciences* . 120, e2204098120. <https://doi.org/10.1073/pnas.2204098120>

20. Halpern, B, C Boettiger, MC Dietze, JA Gephart, P Gonzalez, NB Grimm, PM Groffman, J Gurevitch, SE Hobbie, KJ Komatsu, KJ Kroeker, HJ Lahr, DM Lodge, CJ Lortie, JS Lowndes, F Micheli, HP Possingham, MH Ruckelshaus, C Scarborough, CL Wood, **G.C. Wu**, et al. (co-authors listed here were steering committee members for the virtual workshop on Future of Synthesis Summit and other co-authors were workshop participants). 2023. Priorities for synthesis in ecology and environmental science. *Ecosphere*
19. **Wu, G.C.***, JS Baker, CM Wade, GC McCord, JE Fargione, P Havlik. 2023. Contributions of healthier diets and agricultural productivity towards sustainability and climate goals in the United States. *Sustainability Science*. <https://doi.org/10.1007/s11625-022-01232-w>
18. Mosnier, A., Schmidt-Traub, G., Obersteiner, M., Jones, S., Javalera-Rincon, V., DeClerck, F., Thomson, M., Sperling, F., Harrison, P., Pérez-Guzmán, K., McCord, G.C., Navarro-Garcia, J., Marcos-Martinez, R., **Wu, G.C.** ...et al. (all lead contributors to the 2019 FABLE report). 2022. How can diverse national food and land-use priorities be reconciled with global sustainability targets? Lessons from the FABLE initiative. *Sustainability Science*. <https://doi.org/10.1007/s11625-022-01227-7>
17. Chowdhury, A.K.=, R. Deshmukh=, **Wu, G.C.**, A. Uppal, A. Mileva, T. Curry, L. Armstrong, S. Galelli, K. Ndhlukula. 2022. Enabling a low-carbon electricity system for Southern Africa. *Joule*. <https://doi.org/10.1016/j.joule.2022.06.030>
16. McGill, BM, SB Borrelle; **G.C. Wu**; KE Ingeman, JB Koch Uhuad; N Barnd. 2022. Words are monuments: Patterns in US national park place names perpetuate settler colonial mythologies including white supremacy. *People and Nature*, 4(3): 683-700, <https://doi.org/10.1002/pan3.10302>
15. Borrelle, SB, JB Koch, C McDonough MacKenzie, KE Ingeman, BM McGill, MR Lambert, AM Belasen, J Dudney, CH Chang, AK Teffer, **G.C. Wu**. 2020. What does it mean to be for a place? A perspective on place-based science. *Pacific Conservation Biology*. 27(4): 354-361, <https://doi.org/10.1071/PC20015> [Other than first two authors, all subsequent authors ordered by random number generator]
14. **Wu, G.C.***, Leslie, E., Allen, D., Sawyerr, O., Cameron, D.R., Brand, E., Cohen, B., Ochoa, M., Olson, A. 2020. Low-impact land use pathways to deep decarbonization of electricity. *Environmental Research Letters*. 15(7): 074044, <https://doi.org/10.1088/1748-9326/ab87d1>
13. Deshmukh, R.= **G.C. Wu**=, D. Callaway, A. Phadke. 2019. Geospatial and techno-economic analysis of wind and solar resources in India. *Renewable Energy*. 134: 947-960, doi: /10.1016/j.renene.2018.11.073
12. Deshmukh, R., A. Mileva, **G.C. Wu**. 2018. Renewable energy alternatives to mega hydropower: a case study of Inga 3 for Southern Africa. *Environmental Research Letters*. 13(6): 064020. doi: 10.1088/1748-9326/aabf60,
11. **Wu, G.C.***=, R. Deshmukh=, K. Ndhlukula, T. Radojicic, J. Reilly-Moman, A. Phadke, D. Kammen, D.S. Callaway. 2017. Strategic siting and grid interconnection key to Africa's low-carbon electricity future. *Proceedings of the National Academy of Sciences*. 114 (15): E3004-E3012, doi: 10.1073/pnas.1611845114
 - Covered by several news outlets including: **CarbonBrief**, **AAAS Science Update Podcast**, **IEEE Spectrum Magazine**, **PV Magazine**, **ClimateWire**, **Nature Middle East**
10. Nadeau, NJ, C. Pardo-Diaz, A. Whibley, M. Supple, S.V. Saenko, R.W.R. Wallbank, **G.C. Wu**, L.S. Maroja, L. Ferguson, J.J. Hanly, H. Hines, C. Salazar, R. Merrill, A. Dowling, R. French-Constant, V. Laurens, M. Joron, O. McMillan, C.D. Jiggins. 2016. The gene Cortex controls mimicry and crypsis in butterflies and moths. *Nature*. 534:106–110, doi: 10.1038/nature17961
9. Hallfors, MH, J Liao, J. Dzurisin, R. Grundel, M Hyvarinen, K. Towle, **G.C. Wu**, JJ. Hellmann. 2015. Addressing potential local adaptation in species distribution models: implications for conservation under climate change. *Ecological Applications*. 26: 1154-1169, doi: 10.1890/15-0926.1
8. R. Hernandez, M. Hoffacker, M.L. Murphy-Mariscal, **G.C. Wu**, M. Allen. 2015. Solar energy development impacts on land cover change and protected areas. *Proceedings of the National Academy of Sciences*. 112(44): 13579-13584, doi: 10.1073/pnas.1517656112
7. **Wu, G.C.**, J.C. Wright. 2015. Exceptional thermal tolerance and water resistance in the diminutive mite Paratarsotomus macropalpis (Erythracaridae) challenges explanations of physiological mechanisms. *Journal of Insect Physiology*. 82:1–7.
6. **Wu, G.C.***, M.S. Torn, J. Williams. 2015. Incorporating Land-Use Requirements and Environmental Constraints in Low-Carbon Electricity Planning for California. *Environmental Science and Technology*. 49(4): 2013–2021
5. O'Neil, S.T., J.D.K. Dzurisin, S.J. Emrich, N.F. Lobo, J.M. Deines, J.K. Higgins, C.M Williams, R.D. Carmichael, E. Zeng, **G.C. Wu**, J.J Hellmann. 2014. Gene expression in closely related species mirrors local adaptation: consequences for responses to a warming world. *Molecular Ecology*. 23 (11): 2686-2698.
4. **Wu, G.C.***, M. Joron, C.D. Jiggins. 2010. Signatures of selection in loci governing major colour patterns in polymorphic Heliconius butterflies and related species. *BMC Evolutionary Biology*. 10:368.
3. **Wu G.C.**, J.C. Wright, D.L. Whitaker, A.N. Ahn. 2010. Kinematic evidence for superfast locomotory muscle in two species of teneriffid mites. *Journal of Experimental Biology*. 213: 2551-2556.
 - Featured on **Inside JEB**

2. Salazar, C., S.W. Baxter, C. Pardo-Diaz, **G.C. Wu**, A. SurrIDGE, M. Linares, E. Bermingham, C.D. Jiggins. 2010. **Genetic Evidence for Hybrid Trait Speciation in Heliconius Butterflies**. *PLoS Genetics*. 6(4): e1000930.
1. Schuh, R.T. and **G.C. Wu**. 2009. **Revision of Eminoculus Schuh (Heteroptera: Miridae: Phylinae) from South Africa, with the description of five new species**. *Entomologica Americana*. 115(1):36-66.

IN PREPARATION

5. **G.C. Wu**, R. Tinianov, R.A. Khan, K. Rajagopalan, M. Yourek, C. Kruger, M. Lambert. Agrivoltaic shading impacts on apple sunburn risk *In prep*.
4. A. Vidal Meza, C. McCamy, M. Lam, R. Deshmukh, **G.C. Wu**. Retrofitting of wind farms with solar PV in the U.S. is a cost-competitive siting strategy. *In prep*.
3. DeRoche, G., Y. Min, M. Singh, S. Poudel, P. Hidalgo-Gonzales, R. Deshmukh, **G.C. Wu**, M. Mildenerger. "Granular downscaling of large-scale survey enable socially-grounded energy infrastructure planning". *In prep*.
2. Min, Y., M. Singh, DeRoche, G., S. Poudel, P. Hidalgo-Gonzales, R. Deshmukh, M. Mildenerger, **G.C. Wu**. "Incentives are critical for achieving electrification targets in line with net zero goals". *In prep*.
1. **G.C. Wu**, V. Butsic, J.Q. Chambers, M.S. Torn, Deforestation and land use impacts of large-scale hydropower in the Brazilian Amazon. *In prep*.

BOOK CHAPTERS

1. H Pilorgé, B Kolosz, **G.C. Wu**, J Freeman. 2021. **Global Mapping of CDR Opportunities** in *The CDR Primer* eds J. Wilcox, B Kolosz, J Freeman

TECHNICAL REPORTS FOR DECISION-MAKERS

11. Lambert, M. R., Candib, A., **Wu, G.C.**, Tinianov, R., Schoenbachler, K., Robertson, J., Altadonna, N., Khan, Md. R. A., Rajagopalan, K., Yourek, M., Shapiro, L., Kinzer, A., Kruger, C. 2025. **Low hanging fruit for Washington's energy future? Agrivoltaic feasibility for agricultural and energy resilience in the Evergreen State**. Report to the Washington Department of Commerce.
10. McCord, G, DR Kanter, M Jacobson, J Sklarew, **Wu, G.C.** 2020. **Accelerating Sustainable Land Use Practices in the U.S.** Chapter in *America's Zero Carbon Action Plan*.
9. **Wu, G.C.** 2020. **Spatial Planning for Low-Carbon Transitions** America's Zero Carbon Action Plan.
8. **Wu, G.C.**, J. Baker, G. McCord. 2019. **Sustainable land use and food systems in the USA** in *Pathways to Sustainable Land-Use and Food Systems: 2019 Report of the FABLE Consortium*. International Institute for Applied Systems Analysis (IIASA) and Sustainable Development Solutions Network (SDSN), Laxenburg and Paris.
7. **Wu, G.C.** Leslie, E., Allen, D., Sawyerr, O., Cameron, D.R., Brand, E., Cohen, B., Ochoa, M., Olson, A., 2019. **Power of Place: Land Conservation and Clean Energy Pathways for California**. (Technical Report). The Nature Conservancy.
 - Press coverage in: *LA Times*, *Grist*, and Utility Dive
6. Deshmukh, R., A. Mileva, **G.C. Wu**. Sept 2017. **How Wind and Solar Could Power the Democratic Republic of Congo and South Africa**. International Rivers.
5. Deshmukh, R., **G.C. Wu**, A. Phadke. April 2017. **Renewable Energy Zones for Balancing Siting Trade-offs in India**. Lawrence Berkeley National Laboratory.
4. **Wu, G.C.**, R. Deshmukh, K. Ndhulukula, T. Radojicic, J. Reilly. March 2015. **Renewable Energy Zones for the Africa Clean Energy Corridor**. International Renewable Energy Agency and Lawrence Berkeley National Laboratory.
 - Basis for *Nature* Feature article, "Can wind and solar fuel Africa's future?"
3. **Wu, G.C.**, N. Schlag, E. Brand, R. Cameron, L. Crane, JH Williams, S. Price. February 2015. **Integrating Land Conservation and Renewable Energy Goals in California: A Study of Costs and Impacts Using the Optimal Renewable Energy Build-Out (ORB) Model**. Technical Report. 34 pages plus appendices. The Nature Conservancy and Environmental and Energy Economics.
2. Minjares, R., V. Wagner, S. Chambliss, A. Baral, **G.C. Wu**, S. Galarza, F. Posada, B. Sharpe, K. Blumberg, F. Kamakate, A. Lloyd. April 2014. **Reducing Black Carbon Emissions from Diesel Vehicles: Impacts, Control Strategies, and Cost-Benefit Analysis**. The World Bank.
1. Williams, C., A. Hasanbeiji, **G.C. Wu**, L. Price. 2012. International Experience with Quantifying the Co-Benefits of Energy Efficiency and Greenhouse Gas Mitigation Programs and Policies. China Energy Group, Lawrence Berkeley National Laboratory.

OTHER PUBLICATIONS (EXECUTIVE SUMMARIES, POLICY BRIEFS, OP/EDS)

9. **G.C. Wu**, E. Leslie, R. Jones, J. Fargione. **Net-Zero by 2050 with Minimizing Land-Use Impacts? Power of Place report says YES** North American Clean Energy. August 4, 2023.

8. N. Johnson, R. Jones, E. Leslie, **G.C. Wu**, C. Hiltibran, C. Hise, J. Fargione, L. Kalies, J. Williams. **Power of Place – National Executive Summary** The Nature Conservancy. May 2023.
7. R. Deshmukh, K. Ndhlukula, **G.C. Wu**, and AFM Kamal Chowdhury. **Enabling Southern Africa’s Transition to a Low-Carbon Electricity System** COP27: Climate Compatible Growth, UK AID. Sept 24, 2022.
E. Brand, N. Hill, N. Johnson, **G.C. Wu**, R. Jones, E. Leslie, B. Cohen, S. Parker, C. Stanley, M. Batres **Power of Place – West Executive Summary** The Nature Conservancy. Sept 2022.
6. **G.C. Wu**. **Renewables siting must take the path of least conflict** SDG Action. Energy Issue. Apr 5, 2022.
5. **G.C. Wu**, R. Deshmukh. **Wind and solar change the game** Africa In Fact. Issue 56. Dec 9, 2020.
4. **G.C. Wu**, R. Deshmukh. **Why wind and solar would offer the DRC and South Africa better energy deals than Inga 3** The Conversation. July 23, 2020 10:45am EDT.
3. S.B. Borrelle, J.B. Koch, B.M. McGill, C. McDonough MacKenzie, **G.C. Wu**, M.R. Lambert, J. Dudney, A.M. Belasen, K. Ingeman, M. Bogan, A. Teffer, M. Bletz, C. Chang, T. Young. **SCB Opposes Construction of Thirty Meter Telescope (TMT) on Mauna Kea (Mauna a Wakea), Hawai’i** Society for Conservation Biology. Feb 21, 2020.
2. **G.C. Wu**, M.L. Murphy-Mariscal, R. Hernandez. **Can we expand solar power dramatically without damaging protected lands?** The Conversation. October 20, 2015 3:20pm EDT.
1. Deshmukh, R., **G.C. Wu**. Oct 2015. **Designing Low Carbon Futures for African and Other Developing Economies**. International Rivers, Berkeley, CA.

PRESENTATIONS

INVITED SEMINARS AND ORAL PRESENTATIONS

41. Science Media Center Taiwan; Press release for the online press conference on Taiwan Electricity Sector’s Integrated Resource Planning Guidelines; Taipei, Taiwan | Sept 2025 | **California Integrated Resource Planning** (Invited presenter; Virtual)
40. Stanford University, Precourt Institute Energy Seminar, Palo Alto, CA | May 2025 | **The path of least resistance to gigawatt scale renewables** (Invited presenter; In-person)
39. University of Pennsylvania, Kleinman Center for Energy Policy; Philadelphia, PA | Feb 2025 | **Renewable energy siting conflicts** (Invited presenter; In-person)
38. American Association for Teaching Economics; Golden, CO | Nov 2024 | **Ecological and land use impacts of a clean energy transition** (Invited presenter; In-person)
37. John Freemuth Student Congress, Las Vegas, NV | Oct 2024 | **Ecological and land use impacts of a clean energy transition on public lands** (Invited presenter; In-person)
36. American Geophysical Union Annual Conference, Chicago, IL, | Dec 2023 | **Avoiding ecological and social impacts in achieving a low carbon electricity system for Southern Africa**. (Invited presenter; In-person)
35. American Geophysical Union Annual Conference, Chicago, IL, | Dec 2023 | **Land sparing technologies reduce land demand of renewable energy to meet net-zero targets**. (Solicited abstract; In-person)
34. University of San Francisco, Masters in Energy Systems Management seminar series | Nov 2023 | **Spatial planning for low-carbon transitions** (Invited presenter; Virtual)
33. International Energy Workshop Conference, National Renewable Energy Laboratory, Golden, Colorado | June 2023 | **Minimizing habitat conflicts in meeting net zero energy targets in the western United States** (Invited presenter; In-person)
32. National Center for Ecological Analysis and Synthesis (NCEAS), Ecology and Justice Seminar Series | June 2023 | **Net zero pathways that center conservation and communities** (Invited presenter; Virtual)
31. University of Rhode Island, Metcalf Institute | June 2023 | **Revamping America’s Energy Landscape: Balancing sustainability with land us impact** (Invited presenter; Virtual)
30. The Nature Conservancy | May 2023 | **Power of Place – National** (Invited presenter; Virtual)
29. Society for Environmental Journalists annual conference, Boise, ID, | Apr 2023 | **Opening Plenary: Clean Energy and the Land – The high-stakes battle over Climate Solutions** (Invited panelist; In-person)
28. American Geophysical Union Annual Conference, Chicago, IL, | Dec 2022 | **Minimizing habitat conflicts in meeting net zero energy targets the western United States**. (Solicited abstract; In-person)
27. Pomona College, Biology Department Seminar, Claremont, CA | Nov 2022 | **Spatial planning of renewable energy infrastructure for a net zero future** (Invited speaker; In-person)
26. California Governor’s Office of Planning and Research (OPR) expert roundtable on Natural Lands and Biodiversity for California’s Fifth Climate Change Assessment | Sept 2022 | **Presentation of research priority topics for California and roundtable discussion with other academic experts to inform the Fifth**

- Climate Change Assessment** (Invited panelist; Virtual)
25. Columbia University, Global Collaboratory, Climate Week | Sept 2022 | **Spatial planning of renewable energy infrastructure** (Invited presenter and panelist)
 24. Lawrence Berkeley National Laboratory webinar on energy siting, | Sept 2022 | **Predictors of US wind and solar siting** (Invited presenter and panelist)
 23. Natural Resources Stewardship and Science Directorate (NRSS) of the National Park Service (NPS) monthly webinar | July 2022 | **Words are Monuments: Patterns in US national park place names perpetuate settler colonial mythologies including white supremacy** (Invited Panelist)
 22. Global Council on Science and the Environment, Annual Conference | June 22, 2022 | **Minimizing conservation impacts of deep decarbonization pathways** (Invited Presenter)
 21. **California Energy Commission, California Public Utilities Commission, California Independent System Operator - Joint Agency Workshop to Plan for Senate Bill 100 Resource Build – Analysis of Land Use Implications** | Feb 22, 2022 | **Spatial planning for conservation, community, and climate** (Invited Panelist for Virtual Webinar)
 20. **CalPoly Humboldt Sustainable Futures Seminar** | Sept 23, 2021 | **Building a net zero energy system that protects biodiversity** (Invited Virtual Seminar)
 19. University of San Francisco Energy Systems Management Speaker Series | April 7, 2021 | **Power of Place** (Invited Virtual Seminar)
 18. The Nature Conservancy Webinar | Oct 27, 2020 | **Land use planning for renewable energy** (Invited Panelist for Virtual Webinar)
 17. Sustainable Development Solutions Network (SDSN) Webinar | June 25, 2020 | **Spatial Planning for Low-Carbon Transitions** (Invited Virtual Talk)
 16. Climate Parliament (virtual talk to Ministers of Parliament in several African countries) | June 24, 2020 | **Planning low-cost renewable energy for Africa** (Invited Virtual Talk)
 15. American Geophysical Union (AGU), San Francisco, CA | Dec 10, 2019 | **Can we conserve land and decarbonize electricity at the same time?** (Invited Talk)
 14. Office of Energy and Carbon Reduction of Executive Yuan, Taipei, Taiwan | May 16, 2019 | **Renewable energy planning and siting for achieving multiple goals** (Invited Keynote Talk)
 13. Energy Systems Management, University of San Francisco, CA | April 23, 2019 | **Spatial Planning of Renewable Energy** (Invited Talk)
 12. Electrical and Computer Engineering Department Seminar, University of California at Santa Cruz, CA | April 22, 2019 | **Land use in Renewable Energy Planning** (Invited Seminar)
 11. Prayas (Energy and health NGO), Pune, India | Dec 28, 2019 | **Spatial Analysis in Renewable Energy Planning** (Invited Talk)
 10. Earth System Science Department Symposium, University of California at Irvine, CA | Nov 16, 2018 | **Land use in Renewable Energy Planning** (Invited Seminar)
 9. PFP Symposium, UC Merced, CA | Oct 19, 2018 | **Land use in Renewable Energy Planning** (Invited Talk)
 8. Energy and Resources Group Colloquium, UC Berkeley, CA | Oct 17, 2018 | **Land use in Renewable Energy Planning** (Invited Seminar)
 7. Land-Energy Nexus at the Low-Emissions Solutions Conference, University of San Francisco, CA | Sept 11, 2018 | **Land for mitigation, biodiversity, food, and fiber: how can we do it all?** (Talk and Panel Moderator)
 6. Low-Emissions Solutions Conference. Columbia University, NY | Sept 20, 2017 | **Integrated land use planning for managing climate change mitigation, biodiversity, and food production** (Invited Talk)
 5. International Renewable Energy Agency (IRENA) and Kenyan Electricity Regulatory Commission. Nairobi, Kenya | Joint with R. Deshmukh | Sept 30 – Oct 2, 2015 **Technical GIS workshop on renewable energy zoning** | (Designed and conducted three-day workshop)
 4. International Renewable Energy Agency (IRENA) and Southern and Eastern African Power Pools, Addis Ababa, Ethiopia and Harare, Zimbabwe | Oct 2014 | **Southern and Eastern Renewable Energy Zones for the Africa Clean Energy Corridor** (Designed and conducted two three-day workshops)
 3. International Renewable Energy Agency (IRENA), Abu Dhabi, UAE | Jan 2014 | Joint with R. Deshmukh | **Methodology for renewable energy zones in the Africa Clean Energy Corridor** (Invited Talk and conducted one-day workshop)
 2. Demand-side, Energy Division, California Public Utilities Commission | July 2013 | **Review of water-energy studies and recommendations for a cost-effectiveness framework for embedded energy in water** (Invited Talk)
 1. Energy and Environmental Economics (E3), San Francisco, CA | May 2013 | **Land use impacts of low carbon energy for California in 2050** (Invited Talk)

CONTRIBUTED

8. Society for Conservation GIS Conference. Monterey, CA | July 16, 2019 | *Power of Place: Land conservation and clean energy pathways for California* (Talk)
7. American Geophysical Union (AGU) Fall 2016 Meeting, San Francisco, CA. | Dec 13, 2016 | *Land cover impacts of utility-scale hydropower* (Poster)
6. South Africa International Renewable Energy Conference (SAIREC), Cape Town, South Africa. | Oct 4, 2015 | *Renewable energy zones for Eastern and Southern Africa* | with R. Deshmukh (Talk)
5. American Geophysical Union (AGU), Fall 2015 Meeting, San Francisco, CA | Dec 19, 2015 | *Integrating Land Conservation and Renewable Energy Goals in California: Assessing Land Use and Economic Cost Impacts Using the Optimal Renewable Energy Build-Out (ORB) Model* (Poster)
4. Energy Policy Institute Conference, San Francisco, CA | Sept 2014 | *The other renewable integration problem: Anticipated land use demands and tradeoffs of low-carbon electricity for California in 2050* (Talk)
3. Pomona College summer research symposium and Southern California Undergraduate Research Conference | Aug 2007 | *Metabolism in the Oniscidea: allometry in relation to pleopodal lungs* (Talk)
2. American Museum of Natural History REU Student Symposium | Aug 2006 | *Revision of *Eminoculus Schuh* (Heteroptera: Miridae: Phylinae) from South Africa* (Talk)
1. Harvard Forest REU Student Symposium | Aug 2005 | *Ant interaction dynamics predict Formicinae species encroachment in aftermath of the invasive Hemlock Woolly Adelgid* (Talk)

TEACHING

INSTRUCTOR ON RECORD

ENVS145: CLIMATE CHANGE MITIGATION STRATEGIES | INSTRUCTOR ON RECORD

Winter 2023, Winter 2025 | Environmental Studies, UC Santa Barbara, CA, USA

ENVS25: QUANTITATIVE THINKING IN ENVIRONMENTAL STUDIES | INSTRUCTOR ON RECORD

Spring 2022, Spring 2023, Spring 2025 | Environmental Studies, UC Santa Barbara, CA, USA

ENVS154: GIS FOR ENVIRONMENTAL APPLICATIONS | INSTRUCTOR ON RECORD

Winter 2022, Winter 2023, Winter 2025 | Environmental Studies, UC Santa Barbara, CA, USA

TEACHING ASSISTANT

ER102: QUANTITATIVE ASPECTS OF GLOBAL ENVIRONMENTAL PROBLEMS | GRADUATE INSTRUCTOR

Spring 2017 | Energy and Resources Group, UC Berkeley, CA, USA | Instructor on record: [John Harte](#)

ER99/199: DATA AND DIVERSITY | COURSE DESIGNER AND INSTRUCTOR

Fall 2015 | Energy and Resources Group, UC Berkeley, CA, USA

- Collaboratively designed and taught a project based undergraduate course using data science to improve understanding of diversity in STEM fields at UC Berkeley. See course website: datadiversity.berkeley.edu
- Identified and engaged project clients at the Office of Equity and Inclusion and the Berkeley Institute for Data Science.

PROFESSIONAL AND ACADEMIC EXPERIENCE

Technical consultant and adviser | The Nature Conservancy, California Chapter

03/2015 – 06/2019 | San Francisco, CA, USA | Erica Brand and Richard Cameron

Technical consultant | Electricity Sector Management Assistance Program (ESMAP), World Bank

12/2016 - 07/2019 | Washington D.C., USA | Oliver Knight

Technical consultant | International Renewable Energy Agency

08/2015 – 12/2015 | Tijana Radojicic and Kudakwashe Ndhlukula

Technical consultant | Energy and Environmental Economics (E3)

06/2014 – 02/2015 | San Francisco, CA, USA | Dr. Jim Williams

Graduate Student Researcher | International Energy Studies, Lawrence Berkeley National Lab

02/2013 – 08/2015 | Berkeley, CA, USA

Water-energy analyst | Energy Division, California Public Utilities Commission

05/2013 – 06/2013 | San Francisco, CA, USA | Meredith Youngheim

Climate and Health Graduate Intern Analyst | International Council on Clean Transportation

05/2012 – 08/2012 | San Francisco, CA, USA | Ray Minjares

Lead Research Technician | U.S. Geological Survey and University of Notre Dame

05/2010 – 8/2011 | South Bend, Indiana, USA | Dr. Jessica Hellmann and Dr. Ralph Grundel

Environmental Science Educator | FLR Outdoor Education and Science Experience

03/2010 - 04/2010 | Lake Arrowhead, CA, USA

Research Assistant | Smithsonian Tropical Research Institute

09/2009 – 01/2010 | Gamboa, Panama | Dr. Chris Jiggins

Research Assistant | Pomona College History Department

08/2007 – 05/2008 | Claremont, CA, USA | Dr. Angelina Chinn

Rose Hills Foundation research intern | Pomona College Biology Department

Summer 2007 | Claremont, CA, USA | Dr. Jonathan Wright

Organic Chemistry Laboratory TA | Pomona College Chemistry Department

08/2006 – 05/2007 | Claremont, CA, USA

News Associate and Staff Writer | Pomona College weekly newspaper, The Student Life

08/2006 – 01/2007 | Claremont, CA, USA

NSF REU research intern | American Museum of Natural History

Summer 2006 | New York City, NY, USA | Dr. Randall Schuh

NSF REU research intern | Harvard Forest, Harvard University

Summer 2005 | Petersham, MA, USA | Dr. Aaron Ellison

PROFESSIONAL AND UNIVERSITY SERVICE

Scientific Advisory Board Member | Smith Fellowship Conservation Postdoctoral Program

12/2022 - present | Society for Conservation Biology and Cedar Tree Foundation

Reviewer

2022 - present | NSF Strengthening America's Infrastructure; UC President's Postdoctoral Fellowship, Smith Conservation Postdoctoral Fellowship

Peer reviewer

Science Advances | Joule | Nature Sustainability | Nature Clean Technologies Review | Nature Food | Environmental Research Letters | One Earth | Earth's Future | Environmental Science and Technology | Energy | PLoS ONE | Energy Strategy Reviews | J. Disaster Risk Reduction

Committee member | Diversity Committee

09/2021 - 2023 | Environmental Studies, UC Santa Barbara

Career Mentor | Society for Advancement of Chicanos/Hispanics and Native Americans in Science

2019 | Honolulu, Hawaii, USA

Co-organizer | Land-Energy Nexus Affiliate Event at the Global Climate Summit

9/2018 | University of San Francisco, CA, USA

Committee member | Departmental Diversity Committee

2/2015 - 05/2018 | Energy and Resources Group, UC Berkeley, CA, USA

Committee member | Faculty Search Committee, Asst. Professor in Quantitative Environmental Science

11/2015 - 2/2016 | Energy and Resources Group, UC Berkeley, CA, USA

Contributor | Spatial seminar

02/2015 - 05/2015 | Environmental Science Policy and Management, UC Berkeley, CA, USA

Committee member | Graduate Student Admissions Committee

12/2012 - 1/2013 | Energy and Resources Group, UC Berkeley, CA, USA

Solar panel installation volunteer | Grid Alternatives

03/2012 | Berkeley, CA, USA

Biogas digester installer volunteer | Sistema Biobolsa

1/2013 | Yucatan, Mexico

Permaculture Apprentice/WWOOFer | World wide Opportunities in Organic Farming (WWOOF)

07/2008 - 08/2008 | Exeter and Visalia, CA, USA

Pomona College Representative | Students for the Bernard Field Station

08/2007 - 05/2008 | Claremont, CA, USA

Committee member | Environmental Quality Committee, Associated Students of Pomona College

08/2004 - 05/2008 | Claremont, CA, USA

SKILLS AND LANGUAGES

PROGRAMMING/MARK-UP

Python • R • \LaTeX

Over 2000 lines:

JavaScript

Matlab • Optimization Programming

Language (OPL) • PostgreSQL

SPOKEN & WRITTEN

Native fluency:

English, Mandarin

Chinese (spoken)

SOFTWARE

GIS and remote sensing:

Google Earth Engine, ENVI, ArcGIS and arcpy,

QGIS, Python geospatial libraries (gdal,

shapely, geopandas, fiona)