

# Grace C Wu

University of California, Santa Barbara

[www.spatialclimatesolutions.com](http://www.spatialclimatesolutions.com) | [gracecwu@ucsb.edu](mailto:gracecwu@ucsb.edu) | 626.388.5257  
conservation science | sustainable land use planning | climate change mitigation

## EDUCATION

### UNIVERSITY OF CALIFORNIA AT BERKELEY | PH.D. 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

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

## PUBLICATIONS

\*authors contributed equally

### UNDER REVIEW

2. **G.C. Wu\***, R Deshmukh, A Trainor, A Uppal, AFM Kamal Chowdhury, E Martin, J Higgins, A Mileva, K Ndhlukula. Avoiding ecological and social impacts in achieving a low carbon electricity system for Southern Africa. *Nature Communications* - **revise and resubmit**
1. Gathrid, S, R Deshmukh, J Wayland, **GC Wu**. Barriers and incentives in strategizing the phaseout of U.S. coal power. *Nature Energy* - **revise and resubmit**

### PEER-REVIEWED JOURNAL ARTICLES

23. Bristow, LV, R Grundel, J Dzurisin, **GC Wu**, Y Li, A Hildreth, JJ Hellmann. [2023. 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., Fetzner, I., Frank, F., Gonzalez-Abraham, C.E., Habiburrahman, 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., Steinhauser, 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. [2022. 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, N.J., 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, M.H. J Liao, J. Dzurisin, R. Grundel, M Hyvarinen, K. Towle, **G.C. Wu** , J.J. 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 SUBMISSION OR PREPARATION

3. **G.C. Wu** , R. Deshmukh, P. Cartwright, J Decesaro, D Somasundaram, D Kerstan. Predictors of wind and solar siting in the U.S. *In prep.*
2. **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.*
1. **G.C. Wu** , R. Hernandez, R. Deshmukh, J. Williams, M.S. Torn. Setting our sites high: an energy-planning paradigm for meeting renewable energy and conservation goals. *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

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. Ndhlukula, 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. Hiltbran, 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

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 use 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**. (Invited presenter; 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: Phyllinae) 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

**ENVS145: CLIMATE CHANGE MITIGATION STRATEGIES** | INSTRUCTOR ON RECORD  
Winter 2023 | Environmental Studies, UC Santa Barbara, CA, USA

**ENVS25: QUANTITATIVE THINKING IN ENVIRONMENTAL STUDIES** | INSTRUCTOR ON RECORD  
Spring 2022 | Environmental Studies, UC Santa Barbara, CA, USA

**ENVS154: GIS FOR ENVIRONMENTAL APPLICATIONS** | INSTRUCTOR ON RECORD  
Winter 2022, Winter 2023 | Environmental Studies, UC Santa Barbara, CA, USA

**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](http://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 Teacher's Assistant** | 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

**Advisory Board Member** | Smith Fellows Program

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

**Peer reviewer**

Science Advances | Joule | Nature Sustainability | Environmental Research Letters | One Earth | Energy | PLoS ONE  
| Energy Strategy Reviews | J. Disaster Risk Reduction

**Committee member** | Diversity Committee

09/2021 - present | 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 •  $\text{\LaTeX}$

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)