

LAUREN B. BUCKLEY

Curriculum Vitae 9/8/2022

University of Washington, Department of Biology
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Lauren Buckley is a Professor of Biology at the University of Washington, where she is an affiliate of the Center for Quantitative Science and the eScience Data Science Institute and a board member of the Program in Climate Change. Her research integrates modeling, field and lab collection of ecological and physiological data, and informatics to identify the organismal mechanisms underlying responses to climate change. The mechanisms are then used to inform ecological and evolutionary forecasting approaches, which are tested by repeating historical lab and field experiments. She leads the TrEnCh project focused on developing computational and visualization tools to Translate Environmental Change into biological responses for research, education, and outreach (trenchproject.com). Buckley studied biology and math at Williams College, conducted graduate research at Stanford University, and held postdoctoral fellowships at the National Center for Ecological Analysis and Synthesis (NCEAS) and the Santa Fe Institute. She has been recognized as a Kavli Frontiers of Science Fellow and a Future Leader of the Science and Technology in Society Forum.

EDUCATIONAL HISTORY

Stanford University, Stanford, CA USA

Ph.D. Biological Sciences 2001-2005

Dissertation: *Lizard distributions on islands: community ecology and biogeography*

Committee: Joan Roughgarden (chair), Paul Ehrlich, Terry Root, Peter Vitousek

Williams College, Williamstown, MA USA

B.A. Biology (honors), B.A. Mathematics 2000

EMPLOYMENT HISTORY

<i>Professor</i> , University of Washington, Department of Biology	9/2019-
<i>Associate Professor</i> , University of Washington, Department of Biology	9/2015-8/2019
<i>Assistant Professor</i> , University of Washington, Department of Biology	7/2013-9/2015
<i>Affiliated faculty</i> , Quantitative Ecology and Resource Management	
<i>Assistant Professor</i> , University of North Carolina Chapel Hill, Department of Biology & Curriculum for the Environment and Ecology	1/2009-6/2013
<i>Postdoctoral Fellow</i> , National Center for Ecological Analysis and Synthesis	11/2007-12/2008
<i>Omidyar Postdoctoral Fellow</i> , Santa Fe Institute	10/2005-10/2007

AWARDS AND HONORS

Clarivate Highly Cited Researcher in Environment and Ecology	2021
The Reuters Hot List (top 1000 most influential climate scientists)	2021
Expertscape World Expert in Climatic Processes	2021
National Center for Ecological Analysis and Synthesis Visiting Fellow	2019
Future leader, Science and Technology in Society (STS) Forum	2015
NSF nominee to participate in the forum held in Kyoto, Japan.	
NSF CAREER awardee	2014-2019
National Academy of Sciences Kavli Frontiers of Science Fellow	2013

National Academy of Sciences Kavli Frontiers of Science Fellow	2011
NCEAS Postdoctoral Fellowship	2007-2008
Santa Fe Institute Omidyar Postdoctoral Fellowship	2005-2007
NSF Predoctoral Research Fellowship	2001-2004

PUBLICATIONS

Refereed archival journal publications

*: equal contribution, ⁰: postdoc, ¹: graduate student, ²: undergraduate student
Principal/corresponding author is 1st author except where indicated with +
Contributions are described when Buckley is other than 1st or last author

90. **Buckley LB**, Huey RB, and Kingsolver JG. 2022. Asymmetry of thermal sensitivity and the thermal risk of climate change. *Global Ecology and Biogeography*.
89. **Buckley LB**. Temperature-sensitive development shapes insect phenological responses to climate change. *Current Opinion in Insect Science*: 100897.
88. Huey RB and **Buckley LB**. 2022. Designing a seasonal acclimation study presents challenges and opportunities. *Integrative Organismal Biology* 4(1): obac016.
87. Ma L, Levy O, **Buckley LB**, Hou C, and Du W. 2022. Variable impacts on reproductive energetics may render oviparous squamates more vulnerable to climate warming than viviparous species. *Ecography*: e05624.
86. **Buckley LB** and Kingsolver JG. 2021. Evolution of thermal sensitivity in variable and changing environments. *Annual Review of Ecology and Evolution* 52: 563-586.
85. **Buckley LB**, Graham SI¹, and Nufio CR. 2021. Grasshopper species' seasonal timing underlies shifts in phenological overlap in response to climate gradients, variability, and change. *Journal of Animal Ecology* 90:1252-1263.
84. Marochi MZ⁰, Costa TM, and **Buckley LB**. 2021. Ocean warming is projected to speed development and decrease survival of crab larvae. *Estuarine, Coastal and Shelf Science* 259: 107478.
83. Sun B, Ma L¹, Wang Y, Mi C, **Buckley LB**, Levy O, Lu H, and Du W. 2021. Latitudinal embryonic thermal tolerance and plasticity shape the vulnerability of oviparous species to climate change. *Ecological Monographs* 91: e01468.
82. Dornhaus A⁺, Smith B, Hristova K, and **Buckley LB**⁺. 2021. How can we fully realize the potential of mathematical and biological models to reintegrate biology? *Integrative and Comparative Biology* 61: 2244-2254.
81. Smith JM^{1*}, Telemeco RS^{0*+}, Ortiz BAB², Nufio CR, and **Buckley LB**. 2021. High-Elevation Populations of Montane Grasshoppers Exhibit Greater Developmental Plasticity in Response to Seasonal Cues. *Frontiers in Physiology* 12: 738992.
80. **Buckley LB**, Schoville SD, and Williams CM. 2021. Shifts in the relative fitness contributions of fecundity and survival in variable and changing environments. *Journal of Experimental Biology* 224: jeb228031.

79. **Buckley LB**. 2021. Body size shapes thermal stress. *Nature Climate Change* 11:5-6. (News & Views)

78. Kingsolver JG and **Buckley LB**. 2020. Ontogenetic variation in thermal sensitivity shapes insect ecological responses to climate change. *Current Opinion in Insect Science* 41:17-24.

77. Herrando-Perez S, Monasterio C, Beukema W, Gomes V, Ferri-Yanez F, Vietes DR, **Buckley LB**, and Araujo MB. 2020. Heat tolerance is more variable than cold tolerance across species of Iberian lizards after controlling for intraspecific variation. *Functional Ecology* 34: 631-645.
Contributed to writing and analyses.

76. Slatyer RA*, Schoville SD*, Nufio CR, and **Buckley LB**. 2020. Do different rates of gene flow underlie variation in phenotypic and phenological clines in a montane grasshopper community? *Ecology and Evolution* 10: 980-997.

75. Nufio CR and **Buckley LB**⁺. 2019. Grasshopper phenological responses to climate gradients, variability, and change. *Ecosphere* 10:e02866.

74. **Buckley LB** and Kingsolver JG. 2019. Environmental variability shapes evolution, plasticity, and biogeographic responses to climate change. *Global Ecology and Biogeography* 28:1456-1468.

73. MacLean HJ¹, Nielsen ME, Kingsolver JG, and **Buckley LB**⁺. 2019. Using museum specimens to track morphological shifts through climate change. *Philosophical Transactions of the Royal Society B* 374:20170404. (Invited for special issue on “Museum specimens as a roadmap for understanding biodiversity in the Anthropocene”.)

72. **Buckley LB***, Khaliq I*, Swanson D, and Hof C. 2018. Metabolism constrains bird and mammal ranges and predicts shifts in response to climate change. *Ecology and Evolution* 8: 12375-12385.

71. **Buckley LB**, Cannistra AF¹, and John A¹. 2018. Leveraging organismal biology to forecast the effects of climate change. *Integrative and Comparative Biology* 58:38-51. (Invited review for perspectives feature of journal.)

70. Ma L¹, **Buckley LB**⁺, Huey RB, Du W⁺. 2018. A global test of the cold-climate hypothesis for the evolution of viviparity of squamate reptiles. *Global Ecology and Biogeography* 27:679-689.

Contributed to study conception, modelling, and writing.

69. Kingsolver JG and **Buckley LB**. 2018. How do phenology, plasticity and evolution determine the fitness consequences of climate change for montane butterflies? *Evolutionary Applications* 11:1231-1244.

68. Kingsolver JG and **Buckley LB**. 2017. Evolution of plasticity and adaptive responses to climate change along climate gradients. *Proceedings of the Royal Society B* 284: 20170386.

67. Williams CW, Ragland GJ, Betini G, **Buckley LB**, Cheviron ZA, Donohue K, Hereford J, Humphries MM, Lisovski S, Marshall KE, Schmidt PS, Sheldon KS, Varpe O, and Visser ME.

2017. Understanding evolutionary impacts of seasonality: an introduction to the symposium. *Integrative and Comparative Biology* 57: 921-933. (Part of symposium issue on “Evolutionary Impacts of Seasonality”.)

Contributed to study conception and writing.

66. **Buckley LB**, Arakaki AJ², Cannistra AF¹, Kharouba HM⁰, and Kingsolver JG. 2017. Insect development, thermal plasticity and fitness implications in changing, seasonal environments. *Integrative and Comparative Biology* 57: 988-998. (Part of symposium issue on “Evolutionary Impacts of Seasonality”.)

65. Levy O, Borchert JD, Rusch TW, **Buckley LB**, and Angilletta MJ. 2017. Diminishing returns limit energetic costs of climate change. *Ecology* 98:1217-1228.

Contributed to study conception, modelling, and writing.

64. Kingsolver JG, and **Buckley LB**. 2017. Quantifying thermal extremes and biological variation to predict evolutionary responses to changing weather and climate. *Philosophical Transactions of the Royal Society B* 372: 20160147. (Invited for special issue on “Behavioural, ecological and evolutionary responses to extreme climatic events”.)

63. MacLean HJ¹, Kingsolver JG, and **Buckley LB**. 2016. Historical changes in thermoregulatory traits of alpine butterflies reveal complex ecological and evolutionary responses to recent climate change. *Climate Change Responses* 3:13.

62. **Buckley LB** and Huey RB. 2016. Temperature extremes: geographic patterns, recent changes, and implications for organismal vulnerabilities. *Global Change Biology* 22:3829-3842.

61. Telemeco, RS⁰, Fletcher B², Levy O, Riley A², Rodriguez-Sanchez Y², Smith C², Teague C², Waters A², Angilletta MJ, and **Buckley LB**. 2016. Lizards fail to plastically adjust nesting behavior or thermal tolerance as needed to buffer populations from climate warming. *Global Change Biology* 23: 1075-1084.

60. MacLean¹, Higgins JK¹, **Buckley LB**, and Kingsolver JG. 2016. Morphological and physiological determinants of local adaptation to climate in Rocky Mountain butterflies. *Conservation Physiology* 4:cow035.

Contributed to study conception, field and lab work, analysis, and writing.

59. **Buckley LB** and Huey RB. 2016. How extreme temperatures impact organisms and the evolution of their thermal tolerance. *Integrative and Comparative Biology* 56: 98-109. (Part of symposium issue on “Beyond the Mean: Biological Impacts of Changing Patterns of Temperature Variation”.)

58. Williams CW, **Buckley LB**, Sheldon KS, Vickers M, Pörtner HO, Dowd WW, Gunderson AR, Marshall KE, and Stillman JH. 2016. Biological impacts of thermal extremes: mechanisms and costs of functional responses matter. *Integrative and Comparative Biology* 56:73-84. (Part of symposium issue on “Beyond the Mean: Biological Impacts of Changing Patterns of Temperature Variation”.)

Contributed to study conception, modelling, and writing.

57. Levy O, **Buckley LB**, Keitt TH, and Angilletta MJ. 2016. Ontogeny constrains phenology: opportunities for activity and reproduction interact to dictate potential phenologies in a changing climate. *Ecology Letters* 19: 620–628.

Contributed to study conception, modelling, and writing.

56. Levy O, **Buckley LB**, Keitt TH, and Angilletta MJ. 2016. A dynamically downscaled projection of past and future microclimates. *Ecology* 97:1888.

Contributed to study conception, modelling, and writing.

55. MacLean¹, Higgins JK¹, **Buckley LB**, and Kingsolver JG. 2016. Geographic divergence in upper thermal limits across insect life stages: does behavior matter? *Oikos* 181:107-114.

Contributed to study conception, field and lab work, analysis, and writing.

54. Brown CJ, O'Connor MI, Poloczanska ES, Schoeman DS, **Buckley LB**, Burrows MT, Duarte CM, Halpern BS, Pandolfi JM, Parmesan C, and Richardson AJ. 2016. Ecological and methodological drivers of species' distribution and phenology responses to climate change. *Global Change Biology* 22: 1548–1560.

Contributed to study conception and writing.

53. Cunningham HR, Rissler LJ, **Buckley LB**, and Urban MC. 2016. Abiotic and biotic constraints across reptile and amphibian distributions. *Ecography* 39:1-8. (Editor's choice.)

Contributed to study conception, analysis, and writing.

52. Levy O, **Buckley LB**, Keitt TH, Smith C, Boateng K, Davina K, and Angilletta MJ. 2015. Resolving the life cycle alters expected impacts of climate change. *Proceedings of the Royal Society B* 282: 20150837.

Contributed to study conception, modelling, and writing.

51. **Buckley LB***, Nufio CR*, Kirk EM, and Kingsolver JG. 2015. Developmental plasticity determines phenological responses to climate warming. *Proceedings of the Royal Society B* 282: 20150441.

50. Hannah L, Flint L, Syphard AD, Moritz MA, **Buckley LB**, and McCullough IM. 2015. Place and process in conservation planning for climate change: a reply to Keppel & Wardell-Johnson. *Trends in Ecology and Evolution* 30:234-235.

Contributed to study conception and writing.

49. Higgins JK¹, MacLean HJ¹, **Buckley LB**, Kingsolver JG. 2015. Growth, developmental, and stress responses of larvae of the clouded sulphur butterfly, *Colias eriphyle*, to repeated exposure to high, sub-lethal temperatures. *Physiological Entomology* 40:189-195.

Contributed to study conception, field and lab work, analysis, and writing.

48. **Buckley LB***, Ehrenberger JC*, and Angilletta MJ. 2015. Thermoregulatory behavior limits local adaptation of thermal niches and confers sensitivity to climate change. *Functional Ecology* 29: 1038-1047.

47. Kingsolver JG and **Buckley LB**. 2015. Climate variability slows evolutionary responses of *Colias* butterflies to recent climate change. *Proceedings of the Royal Society B* 282: 20142470.

46. O'Connor M, Holding J, Kappel C, Duarte CM, Brander K, Brown C, Bruno J, **Buckley L**, Burrows M, Halpern B, Kiessling W, Moore P, Pandolfi J, Parmesan C, Poloczanska E, Schoeman D, Sydeman W, and Richardson A. 2015. Strengthening confidence in climate impacts science. *Global Ecology and Biogeography* 24:64-76.
Contributed to study conception and writing.
45. **Buckley LB** and Nufio CR. 2014. Elevational clines in the temperature dependence of insect performance and implications for ecological responses to climate change. *Conservation Physiology* 2:cou035.
44. **Buckley LB**, Nufio C, Kingsolver JG. 2014. Phenotypic clines, energy balances, and ecological responses to climate change. *Journal of Animal Ecology* 83:41-50. (Invited for a special issue on Metabolic Ecology)
43. **Buckley LB**. 2014. Species Responses to Climate Change. In *Oxford Bibliographies in Ecology*. Ed. David Gibson. New York: Oxford University Press. DOI: 10.1093/OBO/9780199830060-0080.
42. Burrows MT, Schoeman DS, Richardson AJ, Molinos JG, Hoffmann A, **Buckley LB**, Moore PJ, Brown CJ, Bruno JF, Duarte CF, Halpern BS, Hoegh-Guldberg O, Kappel CV, Kiessling W, O'Connor MI, Pandolfi JM, Parmesan C, Sydeman WJ, Ferrier S, Williams KJ, Poloczanska ES. 2014. Geographical limits to species-range shifts are suggested by climate velocity. *Nature* 507:492-495.
Contributed to study conception and writing.
41. Hannah L, Flint L, Syphard A, Moritz MA, **Buckley LB**, and McCullough IM. 2014. Fine-grain Modeling of Species Response to Climate Change: Microrefugia, Holdouts and Stepping Stones. *Trends in Ecology and Evolution* 29: 390-397.
Contributed to study conception and writing.
40. Heffernan JB, Soranno PA, Angilletta MJ, **Buckley LB**, Gruner DS, Keitt TH, Kellner JR, Kominoski JS, Rocha AV, Xiao J, Harms TK, Goring SJ, Koenig LE, McDowell WH, Powell H, Richardson AD, Stow CA, Vargas R, Weathers KC. 2014. Macrosystems ecology: understanding ecological patterns and processes at continental scales. *Frontiers in Ecology and the Environment* 12: 5-14. (Special issue on macrosystems ecology)
Contributed to study conception and writing.
39. Higgins JK¹, MacLean HJ¹, **Buckley LB**, Kingsolver JG. 2014. Geographic differences and microevolutionary changes in thermal sensitivity of butterfly larvae in response to climate. *Functional Ecology* 28: 982-989.
Contributed to study conception, field and lab work, analysis, and writing.
38. Levy O, Ball BA, Bond-Lamberty B, Cheruvilil KS, Finley AO, Lottig NR, Punyasena SW, Xiao J, Zhou J, **Buckley LB**, Filstrup CT, Keitt TH, Kellner JR, Knapp AK, Richardson AD, Tcheng D, Toomey M, Vargas R, Voordeckers JW, Wagner T, Williams JW. 2014. Approaches to advance scientific understanding of macrosystems ecology. *Frontiers in Ecology and the Environment* 12: 15-23. (Special issue on macrosystems ecology)
Contributed to study conception and writing.
37. **Buckley LB**, Tewksbury JJ, and Deutsch CA. 2013. Can organisms escape the heat of climate change by moving? *Proceedings of the Royal Society B* 280:20131149.

36. Poloczanska ES, Brown CJ, Sydeman WJ, Kiessling W, Schoeman DS, Moore PJ, Brander K, Bruno JF, **Buckley LB**, Burrows MT, Duarte CM, Halpern BS, Holding J, Kappel CV, O'Connor MI, Pandolfi JM, Parmesan C, Schwing F, Thompson SA, and Richardson AJ. 2013. Climate change impacts on marine life from long-term observations. *Nature Climate Change* 3: 919-925.
Contributed to study conception, data collection, analysis, and writing.
35. Kingsolver JG, Diamond S, **Buckley LB**. 2013. Heat stress and the fitness consequences of climate change for terrestrial ectotherms. *Functional Ecology* 27:1415-1423.
34. **Buckley LB**. 2013. Get real: putting models of climate change and species interactions in practice. *Annals of the New York Academy of Sciences* 1297:126-138. (Part of a series from a workshop on climate change and species interactions)
33. **Buckley LB**, Miller EF², Kingsolver JG. 2013. Ectotherm thermal stress and specialization across altitude and latitude. *Integrative and Comparative Biology* 53(4):571-581. (Part of symposium issue on "Physiological Responses to Simultaneous Shifts in Multiple Environmental Stressors: Relevance in a Changing World".)
32. Grigg JW² and **Buckley LB**⁺. 2013. Conservatism of lizard thermal tolerance across evolutionary history and geography. *Biology Letters*. 9: 20121056.
31. Ibanez I, Gornish E, **Buckley L**, Debinski D, Hellmann J, Helmuth Brian, Hille Ris Lambers J, Latimer A, Miller-Rushing A, and Uriarte M. 2012. Moving forward in global-change ecology: capitalizing on natural variability. *Ecology and Evolution* 3:170-181.
Contributed to study conception and writing.
30. **Buckley LB** and Kingsolver JG. 2012. Functional and phylogenetic approaches to forecasting species' responses to climate change. *Annual Review of Ecology, Evolution, and Systematics* 43:205-226.
29. **Buckley LB** and Foushee MS². 2012. Human footprints of climate change in US national parks. *International Journal of Biometeorology* 56:1173-1177.
28. **Buckley LB**, Hurlbert AH, and Jetz W. 2012. Broad-scale ecological implications of ectothermy and endothermy in changing environments. *Global Ecology and Biogeography* 21:873-885.
27. **Buckley LB** and Kingsolver JG. 2012. The demographic impacts of shifts in climate means and extremes on alpine butterflies. *Functional Ecology* 26:969-977.
26. Burrows MT, Schoeman DS, Duarte CM, O'Connor MI, **Buckley LB**, Kappel CV, et al. 2012. Invasive species unchecked by climate - response. *Science* 335: 538-539.
Contributed to writing.
25. Davies TJ* and **Buckley LB***. 2012. Exploring the phylogenetic history of contemporary mammal species richness. *Global Ecology and Biogeography* 21: 1096-1105.
24. Hawkins BA, McCain CM, Davies TJ, **Buckley LB**, Anacker BL, Cornell HV, Damschen EI,

Grytnes JA, Harrison SP, Hawkins BA, Holt RD, Kraft NB, and Stephens PR. 2012. Independent evolutionary pathways to climate-induced similarity of the global species richness gradients of birds and mammals? *Journal of Biogeography* 39:825-841.

Contributed to study conception and writing.

23. Brown CJ, Schoeman DS, Sydeman W, Brander K, **Buckley LB**, Burrows M, Duarte CM, Moore PJ, Pandolfi JM, Poloczanska E, Venables W, and Richardson AJ. 2011. Quantitative approaches in climate change ecology. *Global Change Biology* 17:3697-3713.

Contributed to study conception and writing.

22. **Buckley LB**, Waaser SA², MacLean HJ¹, and Fox R. 2011. Does including physiology improve species distribution model predictions of responses to recent climate change? *Ecology* 92: 2214-2221.

21. Burrows MT, Schoeman DS, **Buckley LB**, Moore P, Poloczanska ES, Brander KM, Brown C, Bruno JF, Duarte CM, Halpern BS, Holding J, Kappel CV, Kiessling W, O'Connor MI, Pandolfi J, Parmesan C, Schwing FB, Sydeman W, and Richardson AJ. 2011. The pace of shifting climate in marine and terrestrial ecosystems. *Science* 334: 652-655.

Contributed to study conception, modelling, and writing.

20. Davies TJ and **Buckley LB**. 2011. Phylogenetic diversity as a window into the evolutionary and biogeographic histories of present day richness gradients for mammals. *Philosophical Transactions of the Royal Society B* 366:2414-2425. (Invited for special issue on "Biogeography and ecology: two views of one world".)

19. Davies TJ, **Buckley LB**, Grenyer R, and Gittleman JL. 2011. The influence of past and present climate on the biogeography of modern mammal diversity. *Philosophical Transactions of the Royal Society B* 366: 2526-2535. (Invited for special issue on "Global biodiversity of mammals".)

Contributed to study conception, analysis, and writing.

18. Diamond SE¹, Frame AM¹, Martin RA¹, and **Buckley LB**. 2011. Species' traits predict phenological responses to climate change in butterflies. *Ecology* 95:1005-1012. (Selected by Faculty of 1000 and as a Nature Research Highlight)

17. Kingsolver JG, Woods HA, **Buckley LB**, Potter KA, MacLean H¹, and Higgins JK¹. 2011. Life cycle complexity and responses to climate change. *Integrative and Comparative Biology* 51 : 719-732. (Part of symposium issue on "A Synthetic Approach to the Response of Organisms to Climate Change: The Role of Thermal Adaptation".)

Contributed to study conception, analysis, and writing.

16. **Buckley LB**, Urban MC, Angilletta MJ, Crozier LG, Rissler LJ, and Sears MW. 2010. Can mechanism inform species distribution models? *Ecology Letters* 13:1041-1054. (Faculty of 1000 Selection)

15. **Buckley LB***, Davies TJ*, Ackerly DD, Kraft NJB, Harrison SP, Anacker BL, Cornell HV, Damschen EI, Grytnes J, Hawkins BA, McCain CM, Stephens PR, and Wiens JJ. 2010. Phylogeny, niche conservatism and the latitudinal diversity gradient in mammals. *Proceedings of the Royal Society B* 277:2131-2138.

14. **Buckley LB**. 2010. The range implications of lizard traits in changing environments. *Global Ecology and Biogeography* 19:452-464.
13. **Buckley LB** and Jetz W. 2010. Lizard community structure along environmental gradients. *Journal of Animal Ecology* 79:358-365.
12. Buckley LJ and **Buckley LB**. 2010. Toward linking ocean models to fish population dynamics. *Progress in Oceanography* 84:85-88.
11. Wiens JJ, Ackerly DD, Allen AP, Anacker BL, **Buckley LB**, Cornell HV, Damschen EI, Davies TJ, Grytnes JA, Harrison SP, Hawkins BA, Holt RD, McCain CM and Stephens PR. 2010. Niche conservatism as an emerging principle in ecology and conservation biology. *Ecology Letters* 13:1310- 1324.
Contributed to study conception and writing.
10. **Buckley LB** and Jetz W. 2008. Linking global turnover of species and environments. *Proceedings of the National Academy of Science* 105: 17836-17841.(Faculty of 1000 Selection)
9. **Buckley LB**. 2008. Linking traits to energetics and population dynamics to predict lizard ranges in changing environments. *American Naturalist* 171:E1-E19.
8. **Buckley LB**, Rodda GH, and Jetz W. 2008. Thermal and energetic constraints on ectotherm abundance: a global test using lizards. *Ecology* 89:48-55.
7. **Buckley LB** and Jetz W. 2007. Insularity and the determinants of lizard population density. *Ecology Letters* 10:481-489.
6. **Buckley LB** and Jetz W. 2007. Environmental and historical constraints on global patterns of amphibian richness. *Proceedings of the Royal Society B* 274:1167-1173.
5. **Buckley LB** and Roughgarden J. 2006. Climate, competition, and the coexistence of island lizards. *Functional Ecology* 20: 315-322.
4. **Buckley LB** and Roughgarden J. 2006. A hump-shaped density-area relationship for island lizards. *Oikos* 113: 243-250.
3. **Buckley LB** and Roughgarden J. 2005. Effect of species interactions on landscape abundance patterns. *Journal of Animal Ecology* 74:1182-1194. (JAE highlighted article)
2. **Buckley LB** and Roughgarden J. 2005. Lizard habitat partitioning on islands: the interaction of local and landscape scales. *Journal of Biogeography* 32: 2113-2121. (cover article)
1. **Buckley LB** and Roughgarden J. 2004. Biodiversity conservation: effects of changes in climate and land use. *Nature* 430: 1 (doi:10.1038/nature02717).

Refereed book chapters

Buckley LB and HilleRisLambers J. 2019. Temperature and Boreal Responses to Climate Change. Lovejoy TJ and Hannah L, eds., *Biodiversity and Climate Change*, Yale University Press.

Non-peer reviewed articles

Huey RB, **Buckley LB**, and Du W. 2018. Biological buffers and the impacts of climate change. *Integrative Zoology* 13:349-354. (Editorial for special issue)

Buckley LB. 2012. Climate change biology as a predictive science? *Trends in Ecology and Evolution* 27:365-366. (Book review)

Buckley LB. 2012. Ecological forecasting. In Craig RK, Pardy B, Nagle JC, Schmitz O, and Smith W. (Eds.) *The Encyclopedia of Sustainability* 5:104-107. Great Barrington, MA: Berkshire Publishing.

Richardson AJ, Brown CJ, Brander K, Bruno JF, **Buckley LB**, Burrows MT, Duarte CM, Halpern BS, Hoegh-Guldberg O, Holding J, Kappel CV, OConnor MI, Pandolfi JM, Parmesan C, Schoeman DS, Schwing F, Poloczanska ES. 2012. Climate Change and Marine Life. *Biology Letters* 8:907-909. (Meeting Report)

OTHER SCHOLARLY ACTIVITY

Invited seminars.

43. University of Colorado Denver, Department of Integrative Biology, *online* April 2022
42. Postdoc invited, Harvard University, Department of Organismic and Evolutionary Biology, *online* March 2022.
41. Student invited, University of Nevada Reno, Ecology, Evolution, and Conservation Biology, *online* February 2022.
40. Western University, Department of Biology, *online* October 2021.
39. Rice University, Department of Biology, *online* September 2021.
38. University of Wyoming, Department of Botany, *online* September 2021.
37. Ecology Live, British Ecological Society, *online* April 2021.
36. Saint Louis University, Department of Biology, *online* March 2021.
35. Bolin Centre seminar Series, Research Area 8 annual seminar, Bolin Centre for Climate Research, Stockholm University, *online* October 2020.
34. Michigan State University, Ecology, Evolutionary Biology, and Behavior, February 2020
33. National Center for Ecological Analysis and Synthesis Roundtable, October 2019
32. University of Washington School of Fisheries and Aquatic Sciences, Quantitative Seminar Series, January 2017
31. University of California Riverside, Department of Biology, November 2016
30. Washington Butterfly Association, March 2016.
29. Pacific Northwest Ecology and Evolution Retreat, keynote speaker, November 2015.
28. Western Washington University, Department of Biology, November 2015.
27. University of California Berkeley, Berkeley Initiative in Global Change Biology, March 2015.
26. University of Washington, Tribeta Biology Honors Society and Club, April 2014

25. University of Puerto Rico Rio Piedras, Department of Biology, March 2014
24. University of Washington, Program on Climate Change Fall Reception, January 2014
23. University of Washington, Atmospheric Sciences, October 2013
22. University of Florida, Wildlife Ecology and Conservation, March 2013
21. University of Colorado, Ecology and Evolutionary Biology, December 2012
20. Duke University, Graduate Program in Ecology, November 2012
19. Florida State University, Department of Biology student invited speaker, September 2012
18. UC Santa Barbara, Department of Geography, March 2012
17. University of Washington, Department of Biology, February 2012
16. University of British Columbia, Biodiversity Research Centre, February 2012
15. George Washington University, Department of Biology, October 2011
14. University of Tennessee Knoxville, Department of Ecology and Evolutionary Biology, September 2011
13. University of North Carolina, Department of Geography, January 2011
12. East Carolina University, Department of Biology, September 2010
11. Duke University, Graduate Program in Ecology, January 2009
10. UC Santa Barbara, Department of Ecology, Evolution, and Marine Biology, June 2008
9. Harvey Mudd College, Department of Biology, March 2008
8. University of North Carolina, Department of Biology, February 2008
7. University of South Carolina, Department of Biology, January 2008
6. University of Connecticut, Department of Ecology and Evolutionary Biology, January 2008
5. UC San Diego, Section of Ecology, Behavior, and Evolution, December 2007
4. UC Los Angeles, Department of Ecology and Evolutionary Biology, December 2007
3. UC Davis, College of Agricultural and Environmental Science, November 2006
2. University of New Mexico, Department of Biology, October 2005
1. Santa Fe Institute, February 2005

Invited presentations given at conferences.

27. "Evolutionary Underpinnings of Ecological Physiology" session, Gordon Research Conference on "Unifying Ecology Across Scales", July 2022
26. American Society of Naturalists Symposium "Evolution in Action", Evolution, June 2022
25. Keynote Speaker, Microclimate Ecology & Biogeography, Antwerp, Belgium, March 2022, *cancelled due to pandemic.*
24. Special Session "Honoring the Life and Legacy of Dr. George Gilchrist: Ecology, Evolution, and Physiology", Society of Integrative and Comparative Biology, January 2021

23. Organized oral session "Ecological Forecasting: Applications, Discoveries, and Opportunities", Ecological Society of American Annual Meeting, August 2020
22. Symposium "Predicting the future: species survival in a changing world", Journal of Experimental Biology 2020 Symposium, Mürren, Switzerland, *postponed* March 2020
21. Symposium "Species interactions in a warming world", Canadian Society for Ecology and Evolution Annual Meeting, May 2017
20. Symposium "Evolutionary Impacts of Seasonality", Society for Integrative and Comparative Biology, January 2017
19. Symposium "Beyond the mean: Biological impacts of changing patterns of temperature variation", Society for Integrative and Comparative Biology, January 2016
18. UW Program in Climate Change Summer Institute, "Terrestrial ecosystems, land surface processes, and climate", September 2015
17. Unifying Ecology Across Scales, Gordon Conference, July 2014
16. HETEROCLIM International Workshop, Loches France, June 2014
15. Symposium "Rapid Climate Change and Species Range Shifts: Observations, Predictions, and Management", Ecological Society of America Annual Meeting, August 2013
14. Ignite session "Constraints in Ecology", Ecological Society of America Annual Meeting, August 2013
13. Symposium "Global Change and the Future of Biodiversity", Israeli-American Kavli Frontiers of Science Symposium, June 2013
12. Symposium "Predicting the future of species and biodiversity in a warmer world: challenges ahead", International Biogeography Society, January 2013
11. Symposium "Physiological Responses to Simultaneous Shifts in Multiple Environmental Stressors: Relevance in a Changing World", Society for Integrative and Comparative Biology, January 2013
10. Climate Change & Species Interactions NSF Workshop, Cary Institute, November 2012
9. NC Herpetological Society Fall, November 2012
8. RCN Forecast Workshop, Marine Biological Laboratory, October 2012
7. Organized oral session "Effect sizes of global change impacts across spatiotemporal scales and organizational levels", Ecological Society of America Annual Meeting, August 2012
6. Metabolic Basis of Ecology, Gordon Conference, July 2012
5. Symposium "Alternative Approaches to the Study of Global Warming Effects on Natural Communities", Ecological Society of America Annual Meeting, August 2010
4. Society for Advancement of Chicanos and Native Americans in Science Annual Meeting, October 2008
3. Organized oral session "Grinnellian Niches or Just Statistical Correlates? Opportunities for Ecological Inference From Species Distribution Models", Ecological Society of America Annual Meeting, August 2008
2. Santa Fe Institute, Competitive Strategies in Complex Systems Workshop, December 2006

1. Symposium "Body Size, Biophysics and Biological Stoichiometry", Ecological Society of America Annual Meeting, August 2003

Invited workshops and working groups

"Climate, Biodiversity, & Disease", Peter Wall Institute for Advanced Studies, University of British Columbia, April 2022

Science and Technology in Society (STS) Forum, Kyoto, Japan, *online* October 2020

"Future of Synthesis", NCEAS workshop, February 2021.

"Reintegrating Biology", NSF Jumpstart meeting. January 2020.

"Species interactions and distribution models". NIMBios working group, 2012-2014

"Environment layers and models". NCEAS working group, 2010-2012

"Towards understanding marine biological impacts of climate change". NCEAS working group, 2009-2011

"The role of niche conservatism in producing biodiversity gradients". NCEAS working group, 2008-2009

"Ant-Plant Interactions". Santa Fe Institute workshop, 2008

"Scaling in Biology", NSF Workshop, UC Davis, Davis, CA 2007

"Mechanistic Range Models: energetics, fitness, and population dynamics". NCEAS & NESCent working group, 2007-2009

DISCCRS II, Dissertation Initiative for Climate Change Research Symposium, Asilomar, CA 2006

"Spatial Ecology Workshop", Mathematical Biosciences Institute, Columbus, OH 2006

Contributed presentations given at conferences

Metabolic Ecology Gordon Conference. Poster presentation 2006, 2008

Ecological Society of America Annual Meeting. Oral presentations 2004-2009

International Biogeography Society Meeting. Poster presentations 2003, 2005, 2007

Evo-WIBO (Pacific Northwest Evolution) Meeting. Oral Presentation. 2014

American Genetic Association Symposium on Evolution & Plasticity. Poster Presentation. 2014

Society of Integrative and Comparative Biology Annual Meeting. Oral Presentation. 2016

Evolution Annual Meeting. Oral presentations 2019

Professional society memberships

American Society of Naturalists

Ecological Society of America

International Biogeography Society

Society of Integrative and Comparative Biology

Journal reviewer

American Midland Naturalist, American Naturalist, Austral Ecology, Biological Journal of the Linnean Society, Biological Reviews, Biology Letters, Bioscience, Conservation Biology, Current Zoology, Diversity and Distributions, Ecography, Ecological Applications, Ecology, Ecology Letters, Elementa, Evolutionary Applications, Frontiers in Ecology and the Environment, Functional Ecology, Global Change Biology, Global Ecology and Biogeography, Integrative and Comparative Biology, Journal of Animal Ecology, Journal of Tropical Ecology, Nature, Nature Climate Change, Nature Communications, Nature Ecology and Evolution, Oecologia, Oikos, PLoS Biology, PLoS ONE, PNAS, Proceedings of the Royal Society of London B, Science, Trends in Ecology and Evolution, Wildlife Research.

Book reviewer

CRC Press, ELSEVIER, Oxford University Press

Report reviewer

US Global Change Research Program National Climate Assessment

Proposal reviewer

NSF Dimensions of Biodiversity, Evolutionary Processes, Integrative Organismal Systems, Population and Community Ecology, Advancing Theory in Biology, and EPSCoR Research Infrastructure Improvement.

Canada Foundation for Innovation; Czech Science Foundation; European Research Council, FONDECYT (National Fund Scientific and Technological Research, Chile); French National Research Agency; Fund for Scientific Research (Belgium); Israel Science Foundation; National Geographic Society Committee for Research and Exploration; National Natural Science Foundation of China (NSFC); Natural Environmental Research Council (NERC, UK); Netherlands Organization for Scientific Research; Research Grants Council of Hong Kong; Royal Society University Research Fellowship, Sigma Delta Epsilon Graduate Women In Science

Scientific external reviewer, BiodivScen joint call, BiodivERsA ERA-NET and Belmont Forum
2018

UNC Charlotte R1 commission area of excellence nomination 2021

External thesis reviewer, Stellenbosch University 2021; James Cook University 2021; Macquarie University 2017; McGill University 2017; Simon Frasier University 2017; University of Melbourne 2017; Stellenbosch University 2016; Simon Frasier University 2016

External examiner, University of Sargodha, Pakistan

STUDENTS AND POSTDOCS

2020-2021 trainees: 1 undergraduate, 1 post baccalaureate, 1 biology graduate students, 2 postdocs

Doctoral Students

- Julia Smith, 2020-, U Washington Biology
- Aji John, 2017-2019, U Washington Biology
- Anthony Cannistra, Ph.D., 2020, U Washington Biology
NSF IGERT Fellow in Data Science
NSF Graduate Research Fellow
Vulcan, Inc. Summer research internship

- Nassima Bouzid, co-chair, Ph.D., 2019, U Washington Biology
NSF Graduate Research Fellow
NSF Dissertation Improvement Grant
- Heidi MacLean, co-chair, Ph.D., 2015, U North Carolina Biology
Currently: Villum Kann Foundation Postdoctoral Fellow, Aarhus University

Visiting Doctoral Students

- Liang Ma, 2015-2016, Institute of Zoology, Chinese Academy of Sciences

Doctoral Committee Membership

- Megan Rua, Ph.D., 2012, U North Carolina Biology
- Sarah Seiter, Ph.D., 2012, U North Carolina Biology
- Jessica Higgins, Ph.D., 2015, U North Carolina Biology
- Jessica Coyle, Ph.D., 2016, U North Carolina Biology
- Ian Breckheimer, Ph.D., 2017, U Washington Biology
- Austin Phillips, Ph.D., 2017, U Washington QERM
- CJ Battey, Ph.D., 2018, U Washington Biology
- Erika Sutherland, Ph.D., 2019, U Washington School of Aquatic and Fisheries Sciences
- Yue Shi, Ph.D., 2019, U Washington Biology
- Will King, Ph.D., 2019, U Washington Biology
- James Diamond, Ph.D., 2019, U Washington School of Aquatic and Fisheries Sciences
- Molly Roberts, Ph.D., 2020, U Washington Biology
- Lyda Harris, Ph.D., 2020, U Washington Biology
- Meera Lee Sethi Ph.D., 2021, U Washington Biology
- Yaamini Venkataraman, Ph.D., 2021, U Washington School of Aquatic and Fisheries Sciences
- Jennifer Hsiao Ph.D., 2022, U Washington Biology
- Jacob Youngblood, Ph.D., 2022, Arizona State University School of Life Sciences
- Alex Payne, 2018-, U Washington School of Environmental and Forest Sciences
- Kaysee Arrowsmith, 2019-, U Washington School of Aquatic and Fisheries Sciences

Postdoctoral Students

- Monica Sheffer, 2022-, U Washington
- Chris Johnson, 2021-, U Washington
- Murilo Marochi, April-November 2019, Visiting São Paulo Research Foundation Postdoc, São Paulo State University
- Ofir Levy, 2016-2017, U Washington Research Scientist (previously postdoctoral collaborator at Arizona State University 2011-2015)
Currently: Senior Lecturer, Tel Aviv University
- Heather Kharouba, 2016, U Washington, NSERC Postdoctoral Fellow
Currently: Assistant Professor, University of Ottawa
- Rory Telemeco, 2014-2016, U Washington
Currently: Assistant Professor, Fresno State University
- Dolly Crawford, 2009-2010, U North Carolina
Currently: Assistant Professor, Ashland University

Undergraduate Honors Students

- Madison Foushee, highest honors, 2010-2011, U North Carolina

Undergraduate Researchers

U Washington

Rachael Ren 2021-, Jonathan Ta 2020-, Isaac Caruso 2020-, Yutaro Sakairi 2019-2021, Andrew Arakaki 2016-2017 (paper co-author); Bryan Briones Ortiz 2015-2017 (Mary Gates Award); Grace Burgin 2015-2017; Damir Zhaksilikov 2016-2017; Kyle Kreiger 2016; Jesse Ma 2015; Teodora Rautu 2015; Adetimi Akinniya 2015

U North Carolina

Evan Kirk 2013-2013 (paper co-author); Parth Shah 2012-2013; Ethan Miller 2012-2013 (paper co-author); Joseph Grigg 2010-2013 (paper lead-author); Edward Shin 2011; Madison Foushee 2010-2011 (paper-co-author); Stephanie Waaser 2010 (paper co-author)

GRANTS

Microsoft AI for Earth. *TrEnCh-IR: Thermal image repository and analysis tools for understanding and researching thermal stress*. \$5k in Azure computing credit. 2020-2021

NSF Rules of Life, Division of Environmental Biology and Division of Integrative Organismal Systems. *Collaborative Research: RoL: Detecting and predicting the relative contributions of fecundity and survival to fitness in changing environments*. \$427k to UW, \$1,077k total, 2020-2023

UW Research Royalty Fund. *Historic and modern grasshopper genetic clines: Local adaptation and responses to climate change*. \$38k, 2017-2018

NSF Advancing Biological Infrastructure. *CAREER: Computational and visualization tools for translating climate change into biological responses*. \$1,177k, 2014-2019, no-cost extension 2020-2021

NSF Division of Environmental Biology. *LiT: Phenotype-based models for ecological and evolutionary responses to climate change*. PI with J. Kingsolver. \$480k, 2011-2014

NSF Macrosystems Biology. *Collaborative research: Incorporating physiological variation in mechanistic range models for ecological forecasting*. PI with M. Angilletta and T. Keitt. \$212k to UNC, \$928k total including a co-advised postdoc, 2011-2014

National Institute for Climate Change Research (NICCR). *Developing mechanistic distribution models that use species' traits to predict responses to climate change*. PI with M. Angilletta, \$84k, 2010-2011

Joint NCEAS/NESCent working group. *Mechanistic distribution models: energetics, fitness, and population dynamics*. PI with M. Angilletta, R. Holt, and J. Tewksbury, ~\$100,000, 2007-2009

National Geographic Society Research and Exploration Grant. *The ecological development of spatial diversity patterns within terrestrial insular communities* Co-author with J. Roughgarden, \$20k, 2004-2005

Grants as international collaborator

NSFC (National Natural Science Foundation of China) Major International (Regional) Joint Research Project. *Latitudinal patterns of lizards' response to climate warming: behavioral and physiological mechanisms and population dynamic prediction*. Foreign Collaborator with Wei-

Guo Du (Institute of Zoology, Chinese Academy of Sciences) and Rick Shine (U Sydney). 2018-2022.

TEACHING

Courses

UW Biological Impacts of Climate Change, Biol315, 3 credits, enrollment 75: Spring 2014, Spring 2016, Fall 2016, Fall 2018, Fall 2020, Fall 2021
UW Physiological Ecology and Evolution of Animals, Biol421, 4 credits, enrollment 48: Fall 2013, Fall 2015, Winter 2017, Spring 2018, Spring 2021, Fall 2021
UNC Seminar in Best Practices in R Analysis, Biol669 Spring 2011
UNC Ecology and Evolution, Biol201 Fall 2010-2012
UNC Global Change Ecology, Biol464 Spring 2010, 2012
UNC Seminar in Spatial and Phylogenetic Analysis in R, Biol669 Spring 2011
UNC Seminar in Phenology and Climate Change, Biol669 Spring 2009

Other teaching contributions

UW Ecoseminar, Biol560 Win 2014, Spr 2014, Fall 2016, Winter 2019,
Spring 2021: Biology visualizations for education and outreach
Faculty for TOPICOS course on population collapses, March 2014
University of Puerto Rico Rio Piedras
Faculty for Workshop on Theoretical Ecology and Climate Change, March 2009
International Centre for Theoretical Physics, Trieste, Italy
Faculty for Complex Systems Schools
- Santa Fe Institute, Santa Fe, NM June 2007
- Santa Fe Institute and Institute of Mathematical Sciences, Chennai, India January 2006

SERVICE

Departmental service

Promotion merit and tenure committee, U Washington, 2020-2022, chair: 2022
Faculty search committee, Integrative Physiology, U Washington, 2018-2019
Faculty search committee, Exploring biological systems from molecules to ecosystems, U Washington, 2017-2018
Graduate program committee, U Washington, 2015-2017
Faculty appointments committee, U Washington, 2013-2014
Graduate admissions committee, U North Carolina, 2010-2012
Undergraduate education committee, U North Carolina, 2012-2013
New Faculty orientation committee, U North Carolina 2011-2013

University service

Governing Board, UW Program in Climate Change, 2021-
Review committee, UW Royalty Research Fund, 2019-2021
Fellow, UW Consortium for the Advancement of Undergraduate STEM Education (CAUSE).
Faculty development program to enhance evidence-based teaching practices at UW, 2017-2019.
Proposal reviewer, UW Royalty Research Fund, 2014
Application reviewer, UW Doris Duke Conservation Scholars Program. Conservation immersion program for undergraduates aimed at broadening participation, 2014

Co-convenor of Global Change Seminar Series, Carolina Seminars and Co-Organizer of Carolina Climate Change Scientists group, U North Carolina, 2011-2013.

Panelist, Meet, Greet, Teach (MGT): Teaching Failure, UW College of the Environment, 2014

Professional service

Society leadership

Vice President, American Society of Naturalists 2023-2025

Editorial boards

Editorial board, PLOS Biology 2022-

Editorial board, The American Naturalist 2018 –

Guest member of Editorial Committee, Annual Review of Ecology, Evolution, and Systematics Volume 52 2019

Editorial board, Ecology Letters 2010 - 2018

Associate Editor, Elementa: Science of the Anthropocene 2013 - 2019

Editorial board, Climate Change Responses 2013-2018

Editorial board, Axios Reviews 2013-2017

Associate Faculty Member, F1000 Physiological Ecology 2012-2017

Advisory boards and award committees

Science Advisory Board, Niwot Ridge LTER, 2022-

Ecological Forecasting Award Committee, ESA, 2022

Panel of Experts, SciOPs (Scientist Opinion Panel Survey), 2022-

Science and Education Coordinating Committee member, National Ecological Observatory Network (NEON) Domain 2, 2009-2013.

Workshop and symposium organizer

Symposium co-organizer, Biological buffers and the impacts of climate change. 9th International Symposium of Integrative Zoology, Xining, Qinghai Province, China, August 2017. (Co-editor of special issue in Integrative Zoology).

NSF Workshop Steering Committee member, Climate Change and Species Interactions (produced special issue of Annals of the New York Academy of Science), 2011-2013.

NSF FORECAST Research Coordination Network Workshop co-organizer, Coupling demography and physiology to forecast species responses to novel conditions, 2013-2014.

Symposium organizer, Does biology (physiology, ecology, evolution) matter in predicting how species' distributions will respond to climate change? Ecological Society of America Annual Meeting, August 2010.

Application review and planning committee member, DISCCRS (Dissertation Initiative for Climate Change Research Symposium) III (2007), SFI complex systems summer school (2006, 2007 & 2009), SFI postdoctoral fellowships (2006).

National or governmental service

<i>Subject guide expert</i> , NSF Reintegrating Biology jump start meeting	2020
<i>NSF proposal and pre-proposal panels</i>	
NSF Integrative Organismal Systems IEP panel	2020
NSF EPSCoR RII Track 2 panel	2020
NSF LTER site review	2019
NSF Graduate Research Fellowship panel	2016
NSF Integrative Organismal Systems pre-proposal panel	2013
NSF Science, Engineering, and Education for Sustainability Fellows panel	2013
NSF Integrative Graduate Education and Research Traineeship Program (IGERT) proposal panel	2012
NSF IGERT pre-proposal panel	2011