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PROFESSOR

SCHOOL OF GEOGRAPHY, DEVELOPMENT & ENVIRONMENT (SGDE); BIOSPHERE 2

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PROFESSIONAL BIOGRAPHY

I am a Biogeographer, which means my science sits at that exciting nexus of understanding how external forces (like environmental and human factors) and internal characteristics (like leaf biochemistry and plant functional type) determine where species can live and thrive. My research group studies the interactive effects of vegetation and climate change on plant & ecosystem function to inform forecasting and decision makers. For the last 15+ years, we have been building the field of 'agrivoltaics' - the concept of colocating agriculture and photovoltaics (renewable energy from solar panels). We began this work in southern Arizona to study the benefits across the food-energy-water nexus, and over the years have developed a national and international program connecting with researchers in Colorado (USA), Mexico, and across Africa and the Middle East. Helping develop science-based solutions to help people adapt to the increasing pressures that come from a changing climate is a personal and professional goal.

CHRONOLOGY OF EDUCATION

- 2005-2010 University of Arizona, Tucson, Arizona, USA
 Ph.D. Ecology & Evolutionary Biology, 2010
- 1998-2001 University of Georgia, Athens, Georgia, USA
 M.S. Forest Ecology, 2001
- 1994-1998 Texas Christian University, Ft. Worth, Texas, USA
 B.S. Environmental Science, 1998

CHRONOLOGY OF EMPLOYMENT

- 2021 – Present **Kellogg Chair** in Southwest Borderlands Food and Water Security, University of Arizona (UofA), Tucson, AZ, USA
- 2021 – Present **Professor**, School of Geography, Development & Environment (SGDE) / Biosphere 2, UofA, Tucson, AZ, USA
- 2021 – Present **Director of Food, Energy, and Water Resilience Solution**, Biosphere 2, UofA
- 2021 – Present **Associate Director of School Garden Workshop**, SGDE, UofA
- 2019 – 2021 **Associate Director**, SGDE, UofA
- 2017 – 2021 **Associate Professor**, SGDE / Biosphere 2, UofA
- 2013 – 2017 **Assistant Professor**, SGDE / Biosphere 2, UofA
- 2010 – 2013 **Assistant Research Professor**, Biosphere 2, UofA
- 2010 – 2011 **Postdoctoral Research Associate**, Department of Botany, University of Wyoming

PUBLICATIONS / CREATIVE ACTIVITY

H-index (ISI).....	58
Citations (ISI, Oct, 2025).....	12636
Articles published in peer review journals.....	122

Refereed journal articles

122. Jia M, B Peng, K Guan, DM Lawrence, EH DeLucia, AK Knapp, **Barron-Gafford GA** (2026). Climate-driven divergence in biophysical and economic impacts of agrivoltaics. *Proceedings of the National Academy of Sciences* 123 (10), e2514380123.
121. Muir R, P Kushwaha, **GA Barron-Gafford**, A Babst-Kostecka. (2026). Enhancing climate-smart crop performance in arid agrivoltaics systems: effects of photovoltaic shading and soil amendments on tepary bean growth, yield, and associated soil microbiome. *Plant and Soil* 519 (2), 1795-1819.
120. Pascaris AS, T Swanson, C Seay-Fleming, AK Gerlak, J McCall, **Barron-Gafford GA**, Macknick JE (2026). Exploring the effects of policy on stakeholder adoption and deployment of agrivoltaics: A case study of Massachusetts. *Energy Policy* 208 (1). DOI. 10.1016/j.enpol.2025.114921.
119. **Barron-Gafford GA**, Murphy P, Salazar A, Lepley K, Rouini N, Barnett-Moreno I, Macknick JE. (2025). Agrivoltaics as a climate-smart and resilient solution for midday depression in photosynthesis in dryland regions. *Nature Sustainable Agriculture* 3, 1.
118. Norton CL, Hu J, Scott RL, **Barron-Gafford GA**, Babst F. (2025). Thermal imaging of conducting sapwood width enhances dendroecological studies in Southwestern US conifers. *Trees* 39, 118.
117. Neesham-McTiernan TH and **Barron-Gafford GA**. (2025). The long-term suitability of agrivoltaics as a climate adaptation strategy in the southwestern United States. *Global Environmental Change Advances* 5, 100021.
116. Rouini N, Salazar A, Murphy P, Lepley K, **Barron-Gafford GA**, Murphy P, Salazar A, Lepley K, Rouini N, Barnett-Moreno I, Macknick JE. (2025). High-Shade Dryland Agrivoltaic Conditions Enhanced Carbon Uptake and Water-Use Efficiency in Zucchini (*Cucurbita pepo*). *Frontiers in Sustainable Food Systems* 9, 1686773.
115. Seay-Fleming C, Swanson T, Gerlak AK, Pavao-Zuckerman MA, Andrews H, Moore K, **Barron-Gafford GA**. (2025). Cultivating engagement: Public participation in agrivoltaics planning and design. *Energy Research & Social Science* 127, 104273.
114. Zuniga-Teran AA, Kokroko KJ, Radonic LM, Hovis ME, Brown AR, Gaxiola IE, Sandoval F, Bryson M, Aguilar-Murrieta C, Rodriguez-Ponce OA, Baldwin B, N Gupta N, Cortez LI, **Barron-Gafford GA**. (2025). Beyond native plants: Aligning greening programs with disadvantaged communities' landscape needs for more equitable green infrastructure planning. *Geoforum* 166, 104393.
113. Macy A, Swanson T, Seay-Fleming C, Gerlak AK, **Barron-Gafford GA**. (2025). Designing for dual-use solar: An examination of the agrivoltaic policy landscape in the United States. *Energy Policy* 205, 114682
112. Swanson T, Seay-Fleming C, Gerlak AK, **Barron-Gafford GA**. (2025). "Enough is enough, we like our farms": The role of landscape ideology in shaping perceptions of solar energy and agrivoltaics in the rural American Southwest. *Journal of Rural Studies* 114, 103572

111. Reed DE, Chu H, Peter BG, et al. **Barron-Gafford GA.** (2025). Network of networks: Time series clustering of AmeriFlux sites. *Agricultural and Forest Meteorology* 372, 110686.
110. Randle-Boggis RJ, **Barron-Gafford GA**, Kimaro AA, Lamanna C, Macharia C, Maro J, Mbele A, Hartley SE. (2025). Harvesting the sun twice: Energy, food and water benefits from agrivoltaics in East Africa. *Renewable & Sustainable Energy Reviews*, 208, DOI. 10.1016/j.rser.2024.115066
109. Webb RW, Knowles JF, Fox A, Fabricus A, Corrie T, Mooney K, Gallais J, Frimpong NAG, Akurugu CA, **Barron-Gafford GA.** (2024). Energy-Water Asynchrony Principally Determines Water Available for Runoff From Snowmelt in Continental Montane Forests. *Hydrological Processes*, 38, 10. DOI. 10.1002/hyp.15297
108. Warmann E, Jenerette GD, **Barron-Gafford GA.** (2024). Agrivoltaic system design tools for managing trade-offs between energy production, crop productivity and water consumption. *Environmental Research Letters*, 19, 3. DOI. 10.1088/1748-9326/ad2ab8
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106. Gomez-Casanovas N, Mwebaze P, Khanna M, Branham B, Time A, DeLucia EH, Bernacchi CJ, Knapp AK, Hoque MJ, Du X, Blanc-Betes E, **Barron-Gafford GA**, Peng B, Guan K, Macknick J, Miao R, Miljkovic N. (2023). Knowns, uncertainties, and challenges in agrivoltaics to sustainably intensify energy and food production. *Cell Reports Physical Science*, 4(8), 101518. <https://doi.org/10.1016/j.xcrp.2023.101518>
105. Macknick J, Hartmann H, **Barron-Gafford GA**, Beatty B, Burton R, Seok-Choi C, Davis M, Davis R, Figueroa J, Garrett A, Hain L, Herbert S, Janski J, Kinzer A, Knapp A, Lehan M, Losey J, Marley J, MacDonald J, Walston L. (2022). The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons from the InSPIRE Research Study. *USDOE Office of Energy Efficiency and Renewable Energy (EERE), Renewable Power Office. Solar Energy Technologies Office.* <https://doi.org/doi:10.2172/1882930>.
104. Sturchio MA, Macknick JE, **Barron-Gafford GA**, Chen A, Alderfer C, Condon K, Hajek OL, Miller B, Pauletto B, Siggers JA, Slette IJ, Knapp AK. (2022). Grassland productivity responds unexpectedly to dynamic light and soil water environments induced by photovoltaic arrays. *Ecosphere*, 13(12), e4334. <https://doi.org/10.1002/ecs2.4334>
103. Javadian M, Smith WK, Lee K, Knowles JF, Scott RL, Fisher JB, Moore DJP, van Leeuwen WJD, **Barron-Gafford GA**, Behrangi A. (2022). Canopy Temperature Is Regulated by Ecosystem Structural Traits and Captures the Ecohydrologic Dynamics of a Semiarid Mixed Conifer Forest Site. *Journal of Geophysical Research: Biogeosciences*, 127(2), e2021JG006617. <https://doi.org/10.1029/2021JG006617>
102. Ravi S, Law DJ, Caplan JS, **Barron-Gafford GA**, Dontsova KM, Espeleta JF, Villegas JC, Okin GS, Breshears DD, Huxman TE. (2022). Biological invasions and climate change amplify each other's effects on dryland degradation. *Global Change Biology*, 28(1), 285-295. <https://doi.org/10.1111/gcb.15919>

101. Wang X, Biederman JA, Knowles JF, Scott RL, Turner AJ, Dannenberg MP, Köhler P, Frankenberg C, Litvak ME, Flerchinger GN, Law BE, Kwon H, Reed SC, Parton WJ, **Barron-Gafford GA**, Smith WK. (2022). Satellite solar-induced chlorophyll fluorescence and near-infrared reflectance capture complementary aspects of dryland vegetation productivity dynamics. *Remote Sensing of Environment*, 270, 112858. doi.org/10.1016/j.rse.2021.112858
100. Zhang X, Xie Z, Ma Z, **Barron-Gafford GA**, Scott RL, Niu G-Y. (2022). A Microbial-Explicit Soil Organic Carbon Decomposition Model (MESDM): Development and Testing at a Semiarid Grassland Site. *Journal of Advances in Modeling Earth Systems*, 14(1), e2021MS002485. <https://doi.org/10.1029/2021MS002485>
99. Nabity PD, **Barron-Gafford GA**, Whiteman NK. (2021). Intraspecific competition for host resources in a parasite. *Current Biology*, 31(6), 1344-1350.e1343. <https://doi.org/10.1016/j.cub.2021.01.034>
98. Dwivedi R, Eastoe C, Knowles JF, Hamann L, Meixner T, “Ty” Ferre PA, Castro C, Wright WE, Niu G-Y, Minor R, **Barron-Gafford GA**, Abramson N, Mitra B, Papuga SA, Stanley M, Chorover J. (2021). An improved practical approach for estimating catchment-scale response functions through wavelet analysis. *Hydrological Processes*, 35(3), e14082. <https://doi.org/https://doi.org/10.1002/hyp.14082>
97. Scott RL, Knowles JF, Nelson JA, Gentine P, Li X, **Barron-Gafford GA**, Bryant R, Biederman JA. (2021). Water Availability Impacts on Evapotranspiration Partitioning. *Agricultural and Forest Meteorology*, 297, 108251. <https://doi.org/10.1016/j.agrformet.2020.108251>
96. Avitia M, Barrón-Sandoval A, Hernández-Terán A, Benítez M, A. **Barron-Gafford GA**, Dontsova K, A. Pavao-Zuckerman M, E. Escalante A. (2021). Soil microbial composition and carbon mineralization are associated with vegetation type and temperature regime in mesocosms of a semiarid ecosystem. *Federation of European Microbiological Societies Microbiology Letters*, 368(4). <https://doi.org/10.1093/femsle/fnab012>
95. Dwivedi R, Eastoe C, Knowles JF, McIntosh J, Meixner T, Ferre TPA, Minor R, **Barron-Gafford GA**, Abramson N, Stanley M, Chorover J. (2021). Tandem use of transit time distribution and fraction of young water reveals the dynamic flow paths supporting streamflow at a mountain headwater catchment. *Hydrology and Earth System Sciences*, 2021, 1-50. <https://doi.org/10.5194/hess-2021-355>
94. Lee E, Kumar P, Knowles JF, Minor RL, Tran N, **Barron-Gafford GA**, Scott RL. (2021). Convergent Hydraulic Redistribution and Groundwater Access Supported Facilitative Dependency Between Trees and Grasses in a Semi-Arid Environment. *Water Resources Research*, 57(6), e2020WR028103. <https://doi.org/10.1029/2020WR028103>
93. **Barron-Gafford GA**, Knowles JF, Sanchez-Cañete EP, Minor RL, Lee E, Sutter L, Tran N, Murphy P, Hamerlynck EP, Kumar P, Scott RL. (2021). Hydraulic redistribution buffers climate variability and regulates grass-tree interactions in a semiarid riparian savanna. *Ecohydrology*, 14(3), e2271. <https://doi.org/10.1002/eco.2271>
92. Morino K, Minor RL, **Barron-Gafford GA**, Brown PM, Hughes MK. (2021). Bimodal cambial activity and false-ring formation in conifers under a monsoon climate. *Tree Physiology*, 41(10), 1893-1905. <https://doi.org/10.1093/treephys/tpab045>

91. Knowles JF, Scott, RL, Biederman, JA, Blanken, PD, Burns, SP, Dore, S, Kolb, TE, Litvak, ME, **Barron-Gafford GA**. (2020). Montane forest productivity across a semiarid climatic gradient. *Global Change Biology*, 26(12), 6945-6958. <https://doi.org/10.1111/gcb.15335>
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89. Nabhan GP, Riordan, EC, Monti, L, Rea, AM, Wilder, BT, Ezcurra, E, Mabry, JB, Aronson, J, **Barron-Gafford GA**, García, JM, Búrquez, A, Crews, TE, Mirocha, P, & Hodgson, WC. (2020). An Aridamerican model for agriculture in a hotter, water scarce world. *Plants, People, Planet*, 2(6), 627-639. <https://doi.org/10.1002/ppp3.10129>
88. Murphy PC, Knowles, JF, Moore, DJP, Anchukaitis, K, Potts, DL, **Barron-Gafford GA**. (2020). Topography influences species-specific patterns of seasonal primary productivity in a semiarid montane forest. *Tree Physiology*, 40(10), 1343-1354. <https://doi.org/10.1093/treephys/tpaa083>
87. Arevalo J, Zeng, X, Durcik, M, Sibayan, M, Pangle, L, Abramson, N, Bugaj, A, Ng, W-R, Kim, M, **Barron-Gafford GA**, van Haren, J, Niu, G-Y, Adams, J, Ruiz, J, Troch, PA. (2020). Highly sampled measurements in a controlled atmosphere at the Biosphere 2 Landscape Evolution Observatory. *Scientific Data*, 7(1), 306. <https://doi.org/10.1038/s41597-020-00645-5>
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85. Dusza Y, Sánchez-Cañete EP, Le Galliard J-F, Ferriere R, Chollet S, Massol F, Hansart A, Juarez S, Dontsova K, van Haren J, Troch P, Pavao-Zuckerman M, Hamerlynck EH, **Barron-Gafford GA**. (2020). Biotic soil-plant interaction processes explain most of hysteretic soil CO₂ efflux response to temperature in cross-factorial mesocosm experiment. *Nature Scientific Reports*, 10. doi: 10.1038/s41598-020-60084-5
84. Dwivedi R, Knowles JF, Eastoe C, Minor R, Abramson N, Mitra B, Wright WE, McIntosh J, Meixner T, Ferre PA, Castro C, Niu GY, **Barron-Gafford GA**, Stanley M, Chorover J. (2020). Ubiquitous Fractal Scaling and Filtering Behavior of Hydrologic Fluxes and Storages from A Mountain Headwater Catchment. *Water*, 12. doi: 10.3390/w12020613
83. Monson RK, Winkler B, Rosenstiel TN, Block K, Merl-Pham J, Strauss SH, Ault K, Maxfield J, Moore DJP, Trahan NA, Neice AA, Shiach I, **Barron-Gafford GA**, Ibsen P, McCorkel JT, Bernhardt J, Schnitzler JP. (2020). High productivity in hybrid-poplar plantations without isoprene emission to the atmosphere. *Proceedings of the National Academy of Sciences of the United States of America*, 117, 1596-1605. doi: 10.1073/pnas.1912327117
82. Dwivedi R, Eastoe C, Knowles JF, Wright WE, Hamann L, Minor R, Mitra B, Meixner T, McIntosh J, Ferre PAT, Castro C, Niu GY, **Barron-Gafford GA**, Abramson N, Papuga SA, Stanley M, Hu J, Chorover J. (2020). Vegetation source water identification using isotopic and hydrometric observations from a subhumid mountain catchment. *Ecohydrology*, 13. e2167. doi.org/10.1002/eco.2167

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3. **Barron-Gafford GA**, Will RE, Burkes EC, Shiver B, Teskey RO. (2003). *Nutrient concentrations and contents, and their relation to stem growth, of intensively managed *Pinus taeda* and *Pinus elliottii* stands of different planting densities. *Forest Science*, **49**: 291-300.
2. Burkes, EC, Will RE, **Barron-Gafford GA**, Teskey RO, Shiver BD. (2003). Biomass partitioning and growth efficiency of intensively managed *Pinus taeda* and *Pinus elliottii* stands of different planting densities. *Forest Science*, **49**: 224-234.
1. Will RE, **Barron GA**, Burkes EC, Shiver BD, Teskey RO. (2001). *Relationship between intercepted radiation, net photosynthesis, respiration, and rate of stem volume growth of *Pinus taeda* and *Pinus elliottii* stands of different densities. *Forest Ecology and Management*, **154**: 155-163.

Chapters in scholarly books

1. Sengupta A, Pangle LA, Volkmann THM, Dontsova K, Troch PA, Meira AA, Neilson JW, Hunt EA, Chorover J, van Haren J, **Barron-Gafford GA**, Bugaj A, Abramson N, Sibayan M. (2016). Advancing understanding of hydrological and biogeochemical interactions in evolving landscapes through controlled experimentation and monitoring at the Landscape Evolution Observatory. In *Terrestrial Ecosystem Research Infrastructures: Challenges, New Developments and Perspectives*. AD Chabbi & H Loescher (Eds.). Taylor & Francis
1. Moore GW, McGuire K, Troch PA, **Barron-Gafford GA**. (2015). Ecohydrology and the Critical Zone: Processes and Patterns across Scales. In *Principles and Dynamics of the Critical Zone*, Giardino and Houser (Eds.). Elsevier.

Electronic publication (peer reviewed)

1. **Barron-Gafford GA (2015)**. *Physiological Ecology of Photosynthesis*. Oxford Bibliographies Online Resource Library. DOI: 10.1093/OBO/9780199830060-0093

Conference Proceedings

3. **Barron-Gafford GA**, Osmond CB, Grieve KA, Lipson D, and Murthy R. (2005) Elevated CO₂ differentially effects photosynthesis and carbon balance in poplar stands, a four-year study. In: van der Est A and Bruce D (eds). *Photosynthesis: Fundamental Aspects to Global Perspectives: Proceedings 13th International Congress on Photosynthesis*. ACG Publishing (Photosynthesis and Global Change, 973-976).
2. Armstrong AF, Hartley IP, Ineson P, **Barron-Gafford GA**, Murthy R and Atkin OK. (2005). Can climate driven changes in photosynthesis be used to predict changes in the rate and temperature sensitivity of ecosystem respiration? In: van der Est A and Bruce D (eds). *Photosynthesis: Fundamental Aspects to Global Perspectives: Proceedings 13th International Congress on Photosynthesis*. ACG Publishing (Photosynthesis and Global Change, 958-959).
1. Will RE, **Barron GA**, Teskey RO, and Shiver B. (2005). Within and between canopy variability of foliar nitrogen concentrations for loblolly and slash pine stands planted at different densities. *Biennial Southern Silviculture Conference Proceedings*.

MEDIA OUTREACH (limited to the last five years)

- 2026 American farmers slid solar panels over 62,000 acres of farmland, and the biggest payoff had almost nothing to do with electricity. Full online version: <https://energiesmedia.com/solar-panels-farmland-crops-agrivoltaics/>
- 2026 Arizona raised solar panels on stilts over its crops so one acre could grow food and make power at once — then researchers noticed a third job nobody put in the brochure: skin under the panels runs 21 degrees cooler, in a country where crop workers are 20 times more likely to die of heat. Full online version: <https://www.autonocion.com/us/arizona-solar-panels/>
- 2025 Inside Climate News: *In the Sweltering Southwest, Planting Solar Panels in Farmland Can Help Both Photovoltaics and Crops*. Full online version: <https://insideclimatenews.org/news/10072025/agrivoltaic-solar-southwest-farmland/>
- 2025 Indiana Ag Connection. *Solar Panels and Farming Unite in Southwest Heat*. Full online version: <https://indianaagconnection.com/news/solar-panels-and-farming-unite-in-southwest-heat>
- 2023 Gaceta UNAM. *Instalan la primera parcela agrovoltaica de México*. Full online version: <https://www.gaceta.unam.mx/instalan-en-la-unam-la-primer-parcela-agrovoltaica-de-mexico/>
- 2022 Mother Jones. *Harvesting Solar Energy Is a Win for America's Farmers*. Full online version: <https://www.motherjones.com/environment/2022/10/solar-energy-farming-agrivoltaics-farmers-crop-yields/>
- 2022 Energy News Network. *Solar panels and crops can coexist, but more study needed on how and where*. Full online version: <https://energynews.us/2022/10/17/solar-panels-and-crops-can-coexist-but-more-study-needed-on-how-and-where/>
- 2021 National Public Radio. *This Colorado 'solar garden' is literally a farm under solar panels*. Full online version: https://www.npr.org/2021/11/14/1054942590/solar-energy-colorado-garden-farmland?utm_campaign=npr&utm_source=facebook.com&utm_medium=social&utm_term=nprnews&fbclid=IwAR1SFVXpKak2ovzILPgR6WFHWW1NIyGYOi9PiVyUhxFdybiQVM5aMsSjzX0
- 2021 Wired Magazine. *Growing Crops Under Solar Panels? Now There's a Bright Idea*. Full online version: <https://www.wired.com/story/growing-crops-under-solar-panels-now-theres-a-bright-idea/>
- 2021 Now this. *Agrivoltaics: Solar Panels Bring Life to Struggling Farms*. Full online version: https://www.youtube.com/watch?v=u_hRm-WFM1M

- 2020 EuroScientist. *Why Growing Crops under Solar Panels is the cross-sector Synergistic Solution we need on our way to achieving several SDGs.*
Full online version:
<https://www.euroscientist.com/why-growing-crops-under-solar-panels-is-the-cross-sector-synergistic-solution-we-need-on-our-way-to-achieving-several-sdgs/>
- 2020 The Desert Leaf. *Agrivoltaics can offer food and energy security.*
Full online version:
<http://trendmag2.trendoffset.com/publication/?m=12024&i=654339&p=6&p p=1>
- 2020 Christian Science Monitor. *A new vision for farming: Chickens, sheep, and ... solar panels.* Full online version:
<https://www.csmonitor.com/Environment/2020/0423/A-new-vision-for-farming-Chickens-sheep-and-solar-panels>

CONFERENCES AND SCHOLARLY PRESENTATIONS (*limited to last five years*)

Invited Symposia

Barron-Gafford GA, Andrews H, Rouini N, Salazar A, Murphy P, Holstrom I, Neesham-McTiernan T, Bute D, Lasley O, Brogniart R, Macknick J, and Lamanna C (*Invited speaker*). Agrivoltaics within a utility-based photovoltaic facility: opportunities for continued food production and irrigation savings. American Geophysical Union's Annual Fall Meeting. Dec. 2025, New Orleans, LA.

Barron-Gafford GA (*Invited speaker*). Estamos major juntos: Usar los agrivoltaicos para mejorar nuestros sistemas de comida, energía, y agua. The 2nd National Symposium of Agrivoltaics in Mexico. Sept. 2025, Queretaro, Mexico.

Barron-Gafford GA (*Invited speaker*). Diseño de sistemas agrovoltaicos con prácticas agroecológicas. The 2nd National Symposium of Agrivoltaics in Mexico. Sept. 2025, Queretaro, Mexico.

Barron-Gafford GA (*Invited Instructor*). Plant Ecophysiology & Biogeography within an Agrivoltaics context. World Agrivoltaics Congress Summer School. July 2025, Freiburg, Germany.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics & Climate-smart Agriculture: Solutions for food, energy and water resilience. UC Merced Engineering Colloquium. Mar. 2025, Merced, CA.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics as a solution for food, energy, and water resilience: Creating a transition in Western States through collaboration. UC Davis Energy Graduate Group Seminar Series. October, 2024, Davis, CA.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics in Arizona. Tumamoc Talks (public lecture series). October, 2024, Tucson, AZ.

Barron-Gafford GA (*Invited speaker*). Better Together: Agrivoltaics as a solution for food, energy, and water resilience. The French Consulate. August, 2024, Los Angeles, CA.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics 101: A potential solution to food, energy, and water challenges. The Solar Farm Summit. July, 2024, Chicago, IL.

Barron-Gafford GA (*Invited speaker*). East African Crops Show Resilience to Projected Climate Change in an Arizona Agrivoltaic System. The World Agrivoltaics Conference. June, 2024, Denver, CO.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics: A tool for a more resilient food, water, and energy future (despite a warmer and drier world). UA School of Geography, Development, & Environment Colloquium. October, 2023, Tucson, AZ.

Barron-Gafford GA (*Invited speaker*). Food, Energy, and Water Resilience Solutions: Agrivoltaics as a Tool for Rural Communities. Rural Renaissance Roadshow. October, 2023, Bentonville, AR.

Barron-Gafford GA (*Invited speaker*). Pinal County Renewable Energy Update. Partnership Breakfast. October, 2023, Casa Grande, AZ.

Barron-Gafford GA (*Invited speaker*). PV Tracking Yields Dynamic Patterns of Crop Productivity and Water Use Across Single Days and Over Growing Seasons. The World Agrivoltaics Conference. April, 2023, Daegu, South Korea.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics as a cure for midday depression: Shade from PV provides respite for food crops in drylands. The World Agrivoltaics Conference. June, 2022, Piacenza, Italy.

Barron-Gafford GA (*Invited speaker*). Updates from the United States: Agrivoltaics allows for farmers to continue producing food in light of renewable energy transitions. The World Agrivoltaics Conference. June, 2021, Freiburg, Germany.

Barron-Gafford GA (*Invited speaker*). Agrivoltaics in drylands: How co-locating renewable energy and food production can create a sustainable southwest. US House of Representatives. February, 2020, Washington, D.C.

AWARDED GRANTS AND CONTRACTS

PRIVATE FOUNDATION GIFTS (Current)

Gift Title: **Agrivoltaic Research (Primary awardee)**

Source of Support: Thomas R. Brown Family Foundation

Total Award Amount: \$1,050,000

Total Award Period Covered: 06/01/25 – 05/31/2028 Commitment

Gift Title: **Agrivoltaic Postdoctoral Scholar Support (Primary awardee)**

Source of Support: Ken & Linda Robin

Total Award Amount: \$150,000

Total Award Period Covered: 09/01/25 – 08/31/2027 Commitment

CURRENT GRANTS AWARDED (Current)

Federal

Project/Proposal Title: **Arizona Alliance for Climate Smart Foods (PI) – *under re-review to determine match with new presidential initiatives***

Additional Participants: Moses Thompson (CoPI)

Source of Support: United States Department of Agriculture

Total Award Amount: \$5,147,106

Total Award Period Covered: 11/01/2023 – 11/03/2026

Commitment (person-months): 1.0

Project/Proposal Title: **Agrivoltaics creates more sustainable energy, food, and water futures for the Southwestern United States: Opportunities at the MW scale (PI) – *under re-review to determine match with new presidential initiatives***

Additional Participants: Andrea Gerlak (CoPI), University of Maryland College Park Source of Support: United States Department of Energy, Solar Energy Technology Office

Total Award Amount: \$1,918,862

Total Award Period Covered: 11/01/2023 – 10/31/2026

Commitment (person-months): 1.0

Project/Proposal Title: **Designing Agrivoltaics for Sustainably Intensifying Food and Energy Production (PI)**

Additional Participants: Andrea Gerlak and Moses Thompson (CoPIs) Source of Support: United States Department of Agriculture

Total Award Amount: \$1,724,366

Total Award Period Covered: 09/01/2022 – 08/31/2026

Commitment (person-months): 1.0

Project/Proposal Title: **Collaborative Research: NSF INCLUDES Alliance: Broadening Career Pathways in Food, Energy, and Water Systems with and within Native American Communities (Native FEWS Alliance) (CoPI)**

Additional Participants: Karletta Chief (PI), Kelly Potter, Valerie Shirley, Diana Dalbotten (CoPIs)

Source of Support: National Science Foundation

Total Award Amount: \$2,928,085

Total Award Period Covered: 08/01/2021 – 07/31/2026

Commitment (person-months): 0.3

SERVICE / OUTREACH

Local / state outreach

2017 – Present	Tucson Unified School District ~ <i>Rincon/University High Schools & Manzo Elementary School: Agrivoltaics installation and curriculum development</i>
2017 – 2019	University of Arizona Museum of Art ~ <i>Art-Science Connections</i>
2017 – 2022	University of Arizona Biosphere 2 ~ <i>Earth Day: Agrivoltaics Hands-on Experiential learning station</i>
2017 – 2021	University of Arizona Biosphere 2 ~ <i>Science Saturday: Agrivoltaics Presentations and Hands-on Experiential learning station</i>
2008 – Present	Informal presentations with Biosphere 2 visitors as we conduct experiments along the tour route

National / International / Professional

2025 – Present	Curriculum Steering Committee ~ International Agrivoltaics Summer School. International Agrivoltaics Congress, Freiburg, Germany.
2025 – Present	Curriculum Steering Committee ~ International Agrivoltaics Summer School. International Agrivoltaics Congress, Freiburg, Germany.
2025 – Present	Co-Chair & Co-Creator ~ Agrivoltaics Sin Fronteras / Agrivoltaics across the Americas Seminar Series. AVSinFronteras.org
2020 – Present	Panel Reviewer ~ U.S. National Science Foundation (US NSF) for the Human-Environment and Geographical Sciences (HEGS) Program.
2019 – Present	Panel Reviewer ~ U.S. Agency for International Development (USAID) for the Enhanced Engagement in Research (PEER) Program.
2019 – Present	Co-Instructor and Course designer ~ Frontiers in Ecosystem Research at the Ecole Normale Supérieure, Paris, France.
2019 – 2022	Affiliate Faculty ~ Water Resources Engineering at Oregon State University to serve on graduate committees as external advisor.
2019 – 2024	Advisory Board Chair ~ Harvesting the sun twice: Enhancing livelihoods in East African agricultural communities through innovations in solar energy; Professor Sue Hartley, University of Sheffield.
2019 – Present	Steering Committee ~ Agrivoltaics202X: International Congress & Exhibition.
2019 – Present	Team Lead ~ Ameriflux US-MtB: Mt Bigelow Data Provider.
2017 – Present	Onsite Reviewer ~ U.S. National Science Foundation Division of Environmental Biology (DEB)
2017 – Present	Virtual Panel Reviewer ~ Swiss National Science Foundation, Swiss National Science Foundation Professorship
2017 – 2020	Virtual Panel Reviewer ~ Israeli Science Foundation, China-Israel Research Program (CIRP) Review Panel
2017 – 2022	International External Reviewer ~ University of Adelaide (Australia), External reviewer for doctoral dissertation
2016 – 2022	Onsite Reviewer ~ U.S. National Science Foundation Ecosystem Science Cluster program Doctoral Dissertation Improvement Grants (DDIG)

National / International / Professional (continued)

2013 – 2018	Onsite Reviewer ~ U.S. Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Graduate Fellowship
2013 – Present	Section Editor ~ <i>Annual Reviews in Plant Biology</i>
2013 – Present	Session Organizer for the Annual Meeting of the American Geophysical Union
2012 – Present	Section Editor ~ <i>Physiological Ecology of Photosynthesis</i> within <i>Oxford Bibliographies in Ecology</i>
2010 – Present	Faculty Mentor for NSF-funded summer Research Experiences for Undergraduates (REU) program at Biosphere 2
2010 – Present	Faculty Mentor summer “Reality Changers” program through UC-San Diego’s Global Environmental Leadership and Sustainability Program
2010 – Present	Oral presentation and poster judge for Ecological Society of America’s Plant Physiological Ecology section awards
2002 – Present	Journal Reviewer (2020- 11; 2021- 8; 2022- 9; 2023 – 9 so far): Representative Journals: <i>Journal of Biogeography</i> , <i>Agricultural and Forest Meteorology</i> , <i>Global Change Biology</i> , <i>Journal of Arid Environments</i> , <i>Nature</i> , <i>Nature Scientific Reports</i> , <i>Nature Energy</i> , <i>Journal of Geophysical Research-Atmospheres</i> , <i>Journal of Geophysical Research-Biogeosciences</i> , <i>Oecologia</i> , <i>Water Resources Research</i> , <i>Remote Sensing of Environment</i> , <i>Environmental Science & Technology</i> , <i>Energy Reports</i> , <i>Nature Sustainability</i>

University

2024 – Present	Co-Chair for the CNRS-UA Partnership for Agrivoltaics at Scale: An Opportunity for Resilience across Food, Energy, and Water Systems Graduate Research Fellowships & International Mobility Program
2019 – Present	Associate Director for the Community and School Garden Program
2019 – Present	Science Coordinator for the PV+Greenroof project on the roof of the UA Environment and Natural Resources Building #2 (ENR2)
2016 – 2017	Ecosystem Genomics Cluster Hire, Earth Sciences executive hiring committee
2015 – 2024	UA Arid Lands Steering Committee
2015 – 2019	Art-Environment Network Governance Committee Member, Institute of the Environment
2014 – 2017	Water, Environmental, and Energy Solutions (WEES) Faculty Proposal Review Board
2013 – 2017	National Ecological Observatory Network Regional Site Selection Committee
2013 – 2020	UofA Sky School, Mt. Lemmon Sky Center – Project Organizer
2012 – 2014	Institute of the Environment Faculty Exploratory Grant Referee
2011 – 2020	University Representative for the Consortium of Universities Allied for Water Research (NSF sponsored program)

Department

2025 – Present	Physical Geography Search Committee
2016 – 2019	SGD Associate Director
2014 – Present	SGD Undergraduate Committee
2014 – 2019	SGD Curriculum and Assessment Committee
2013 – Present	Physical Geography Curriculum Sub-committee
2013 – 2019	UC-San Diego Academic Connections, in partnership with Biosphere 2 – Project Organizer & student mentor
2013 – 2018	Biosphere 2 Earth Month Programming
2013 – 2018	Arizona Center for STEM Teachers – Presenter for weeklong program
2011 – 2019	Critical Zone Observatory – Ecohydrological Partitioning Sub-committee
2010 – Present	Advisor for Biosphere 2 Research Technicians
2010 – Present	Specialty Tour Guide for Biosphere 2 VIP visitors

Societies

2014 – Present	Association of Pacific Coast Geographers (APCG)
2013 – Present	American Association of Geographers (AAG)
2007 – Present	American Geophysical Union (AGU)
2003 – Present	Ecological Society of America (ESA)

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Amy Angert	University of British Columbia, Canada
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Mallory Barnes	Indiana University
Edward Bobich	California State Polytechnic University, Pomona
Joel Biederman	USDA-Agricultural Research Service
Barbara Bond-Lamberty	DOE-Pacific Northwest National Laboratory
David D. Breshears	University of Arizona
Judith L. Bronstein	University of Arizona
Paul D. Brooks	University of Arizona
Brad Butterfield	Northern Arizona University
Jessica E. Cable-Young	University of Alaska-Fairbanks
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Tyson Swetnam	University of Arizona
Peter Troch	University of Arizona
Joost van Haren	University of Arizona
Wim van Leeuwen	University of Arizona
Rodrigo Vargas	University of Delaware
Juan Camilo-Villegas	University of Antioquia, Columbia
Melanie Zeppel	Macquarie University, Australia

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Dr. Travis E. Huxman, Department of Ecology & Evolutionary Biology, University of Arizona (Ph.D. advisor)

Dr. Robert O. Teskey, Warnell School of Forest Resources, University of Georgia, Athens (M.S. Thesis advisor)