

## Omar Gutiérrez del Arroyo Santiago, Ph.D.

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### Education

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#### University of California, Berkeley

Ph.D. in Environmental Science, Policy, and Management 2014 – 2021  
Advisor: Dr. Whendee L. Silver

#### University of Puerto Rico, Río Piedras

M.Sc. in Biology (Ecology) 2012 – 2014  
*Summa cum laude*, Premio José Ramón Ortiz  
Advisor: Drs. Ariel E. Lugo and Tana E. Wood

B.Sc. in Integrative Biology 2008 – 2012  
*Summa cum laude*

### Research and Teaching Experience

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#### NSF-REU at El Verde Field Station (Summer 2010)

- Mentors: Dr. Jess K. Zimmerman and Christopher Nytch
- Project: The effects of microhabitat variability on intra-annual seedling mortality in a montane tropical forest

#### SURF Program at Boston University/Harvard Forest (Summer 2011)

- Mentors: Dr. Pamela Templer and Dr. Andrew Reinmann
- Project: Stem CO<sub>2</sub> efflux of red oak and red maple in a snow-manipulation experiment

#### Volunteer with the International Institute of Tropical Forestry (IITF), USDA Forest Service (August 2010–August 2014)

- Mentors: Dr. Ariel E. Lugo and Dr. Tana E. Wood
- Project: Temporal variability of soil CO<sub>2</sub> efflux in a moist subtropical novel forest in Arecibo, Puerto Rico

#### Technician in Dr. Whendee Silver's Lab at UC Berkeley (Summer 2012)

- Assisted in projects studying carbon cycling in California rangelands and a Puerto Rican subtropical wet forest

#### Teacher Assistant in Ecology course at UPR-RP (August 2012-May 2013)

- Assist Dr. Elvira Cuevas and Dr. Alberto Sabat with course material

**Mentor in K-12 outreach activities in Berkeley, California (2014-2016)**

- As part of *BASIS*, *Be a Scientist*, and *Dinner with a Scientist* programs

**Outreach resource for Luquillo LTER Schoolyard Program (2016-2020)**

- Provide field workshops on soil ecology for K-12 students and teachers

**Environmental Educator with El Puente: Enlace Latino de Acción Climática (February 2018-May 2019)**

- Lead seminars and workshops about climate change for diverse sectors including K-12 students, community leaders, and the general public.

**Professor of General Chemistry I at University of Sacred Heart (Fall 2020)**

- Lead online course and laboratory at the Department of Natural Sciences

**Graduate Research Instructor in Climate Change and the Future of California "Big Ideas" course at UC Berkeley (Spring 2021)**

- Lead two weekly discussion sections and assist Dr. Whendee L. Silver and Dr. David Sedlak with the preparation of course material

**Peer-Reviewed Publications**

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Gutiérrez del Arroyo, O. and W.L. Silver (2018) Disentangling the long-term effects of disturbance on soil biogeochemistry in a wet tropical forest ecosystem. *Global Change Biology* 24: 1673–1684. <https://doi.org/10.1111/gcb.14027>

Gutiérrez del Arroyo, O. and T.E. Wood (2020) Significant diel variation of soil respiration suggests aboveground and belowground controls in a tropical moist forest in Puerto Rico. *Journal of Geophysical Research: Biogeosciences* 125, e2019JG005353. <https://doi.org/10.1029/2019JG005353>

Bond-Lamberty, B., Gutiérrez del Arroyo, O., et al. (2020) COSORE: A community database for continuous soil respiration and other soil-atmosphere greenhouse gas flux data. *Global Change Biology* 26: 7268–83. <https://doi.org/10.1111/gcb.15353>

Gutiérrez del Arroyo, O. and T.E. Wood (2021) Large seasonal variation of soil respiration in a secondary tropical moist forest in Puerto Rico. *Ecology and Evolution* 11(1):263–272. <https://doi.org/10.1002/ece3.7021>

## Grants & Fellowships

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- NSF – Graduate Research Fellowship, 2014: Full Tuition/Stipend for 3 years
- Berkeley Fellowship for Graduate Study, 2014: Full Tuition/Stipend for 2 years
- ESA Soil Ecology Section Travel Grant, 2014: \$600
- Puerto Rico NASA Space Grant Fellowship, 2013: \$15,000 for tuition/stipend
- Western Ag Student Grant, 2013: 50 PRS-Probes valued at \$2,200
- Sigma Xi Grants-in-Aid of Research, 2012: \$500 for research materials
- SEEDS Student Award for ESA Annual Meeting in Portland, OR, 2012: \$1,000
- NSF BIO REU Scholarship for ESA Annual Meeting in Austin, TX, 2011: \$1,000
- The Puerto Rico Louis Stokes Alliance for Minority Participation, 2010: \$800

## Academic Awards

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- Premio Rafael Carrión Jr. from Banco Popular of Puerto Rico, 2008
- ESA Student Section Award for Best Undergraduate Poster Presentation at the ESA Annual Meeting in Portland, Oregon, 2012.
- Premio José Ramón Ortiz from Department of Biology, UPR-Río Piedras, 2014.

## Selected Oral and Poster(\*) Presentations

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Gutiérrez del Arroyo, O., and C. Nytch (2011) The effects of microhabitat variability on intra-annual seedling mortality in a montane tropical forest. Puerto Rico Interdisciplinary Scientific Meeting, Bayamón, P.R.

\*Gutiérrez del Arroyo, O., and C. Nytch (2011) The effects of microhabitat variability on intra-annual seedling mortality in a montane tropical forest. Ecological Society of America Annual Meeting, Austin, Texas.

\*Gutiérrez del Arroyo, O., Reinmann, A., and P. Templer (2011) Vertical variations in stem CO<sub>2</sub> efflux in a temperate forest. Boston University SURF Program Presentations, Boston, MA.

Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2012) Strong seasonal and diel variation in soil CO<sub>2</sub> efflux in a moist subtropical forest. Puerto Rico Interdisciplinary Scientific Meeting, Carolina, P.R.

\*Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2012) Strong seasonal and diel variation of soil CO<sub>2</sub> efflux in a moist subtropical forest in Puerto Rico. Ecological Society of America Annual Meeting, Portland, Oregon.

Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2013) Temperature-driven seasonal & diel variation in soil CO<sub>2</sub> efflux in a moist subtropical forest in Puerto Rico. Association for Tropical Biology and Conservation Meeting, San Jose, Costa Rica. **(Invited speaker)**

Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2013) Seasonal and diel variation of soil respiration in a moist subtropical forest in Puerto Rico. Symposium on The Biological Impacts of Tropical Warming for Ectothermic Animals, San Juan, Puerto Rico. **(Invited speaker)**

\*Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2013) Temperature-driven seasonal and diel variation in soil respiration in a moist subtropical forest in Puerto Rico. American Geophysical Union Fall Meeting, San Francisco, California.

Gutiérrez del Arroyo, O., Wood, T.E., and A.E. Lugo (2014) Controls on diel variation of soil respiration in a novel subtropical moist forest in Puerto Rico. Ecological Society of America Annual Meeting, Sacramento, California.

\*Gutiérrez del Arroyo, O. and T.E. Wood (2014) Interpreting diel patterns of soil respiration in a moist subtropical novel forest: identifying drivers and proposing hypotheses. American Geophysical Union Fall Meeting, San Francisco, California.

\*Gutiérrez del Arroyo, O. and W.L. Silver (2015) How deep does disturbance go? The long-term effects of canopy disturbance on tropical forest soil biogeochemistry. LTER All Scientists Meeting, Estes Park, Colorado.

\*Gutiérrez del Arroyo, O. and W.L. Silver (2015) How deep does disturbance go? The long-term effects of canopy trimming and debris deposition on soil biogeochemistry in a wet tropical forest. American Geophysical Union Fall Meeting, San Francisco, California.

\*Gutiérrez del Arroyo, O. and W.L. Silver (2016) How deep does disturbance go? The legacy of hurricanes on tropical forest soil biogeochemistry. American Geophysical Union Fall Meeting, San Francisco, California.

Gutiérrez del Arroyo, O. and W.L. Silver (2018) Effects of drought and hurricanes on soil biogeochemistry in a wet tropical forest in Puerto Rico. Ecological Society of America Annual Meeting, New Orleans, Louisiana.

Gutiérrez del Arroyo, O. and W.L. Silver (2021) Luquillo Throughfall Exclusion Experiment: Belowground effects of drought in a wet tropical forest. Ecological Society of America Annual Meeting, Virtual.

## **Technical Skills and Proficiencies**

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- Microsoft Office (Word, Powerpoint, Excel)
- JMP, Sigma Plot, and R statistical software
- Campbell/HOBO sensors and dataloggers
- Apogee oxygen sensors
- LI-COR 8100 and 6400 automated infrared gas analyzers
- Static flux method for greenhouse gases
- Gas chromatography to measure greenhouse gas concentrations
- Elemental analyzer for total carbon and nitrogen content
- Inductively coupled plasma mass spectrometry for elemental analyses
- Spectrometer for colorimetric elemental analyses
- Soil physiochemical analyses (nutrients, metals)
- Ample experience conducting field work in forest ecosystems
- Spoken and written proficiency in Spanish (mother language) and English

## **Professional Memberships**

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- Ecological Society of America since 2011
- American Geophysical Union since 2014