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# Marlene Brito-Millán

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School of Environmental Sustainability (SES)  
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## SUMMARY

My research draws on ecology, complexity science, and Indigenous onto-epistemologies to understand spatio-temporal dynamics of land- and waterscapes as emergent expressions of socio-environmental systems using computer modeling, cartography, and fieldwork (ecological and participatory action research).

## KEYWORDS

socio-environmental systems, complexity science, spatial analyses, waterscapes, participatory mapping, computational modeling, sustainability, environmental & climate justice, Indigenous lifeways & STEM ed

## EDUCATION

- 2017 **Ph.D. Oceanography**, Emphasis: *Complexity & Socio-Environmental Systems*  
Scripps Institution of Oceanography (SIO), UCSD, La Jolla, CA  
Co-advisors: BT Werner & Stuart A Sandin  
Thesis: “*Multi-scale dynamics of coral reef systems: building the path towards models of peopled reefs*”
- 2014 **M.S. Marine Ecology**, Scripps Institution of Oceanography, UCSD, La Jolla, CA
- 2006 **B.S. Biology**, Northeastern Illinois University (NEIU), Chicago, IL  
*Magna Cum Laude*  
Honors Thesis: “*Effects of fire exclusion on forest structure and composition*”

## PROFESSIONAL EXPERIENCE

- 2022-present **Assistant Professor**, School of Environmental Sustainability, Loyola University Chicago, Chicago, IL
- 2021 **Research Postdoctoral Fellow**, National Academy of Sciences/Ford Foundation  
Northwestern University, Evanston, IL / Universidad Autónoma de Guerrero, México  
Co-advisors: Megan Bang & Alfredo Méndez Bahena
- 2019 **Research Postdoctoral Fellow**, Biodiversity and Sustainable Env'tl Management (BSE)  
UCMEXUS / Universidad Autónoma de Guerrero - Chilpancingo, GRO, México  
Co-advisors: Alfredo Méndez Bahena & Roberto Carlos Almazán Núñez
- 2017 **Teaching Postdoctoral Fellow**, Environmental & Ocean Sciences (EOSC)  
University of San Diego (USD), San Diego, CA  
Co-advisors: Jennifer Prairie, Sarah Gray and Drew Talley

## SELECTED HONORS & AWARDS

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- 2021 Inducted member of Sistema Nacional de Investigadores (SNI) mexicanos – Nivel Candidata
- 2021 Diplomado – Agroecology for the Commons
- 2020 National Academy of Sciences/Ford Foundation Postdoctoral Fellow
- 2019 UC MEXUS/UAGro Postdoctoral Fellow
- 2019 CONACYT Mexican Repatriation Postdoctoral Fellow (declined)
- 2019 Rachel’s Network Catalyst Award Nominee
- 2019 USD Enhanced Student-Faculty Interaction Funds
- 2018 USD Woman of Impact Award
- 2018 USD Diversity Event Grant
- 2018 Further Foundation Research Grant
- 2017 USD Diversity Postdoctoral Teaching Fellowship
- 2017 University-wide UCSD Equal Opportunity/Affirmative Action and Diversity Award
- 2016 Edward A. Bouchet Graduate Honor Society
- 2016 SIO Center for Marine Biodiversity and Conservation – Mentoring Award
- 2015 UC President’s Dissertation Year Fellowship
- 2015 Hispanic Scholarship Fund (HSF) Doctoral Scholar
- 2015 Ford Foundation Dissertation Improvement Fellowship (Honorable Mention)
- 2009 NSF Graduate Research Fellowship
- 2009 Ford Foundation Predoctoral Fellowship
- 2008 UCSD San Diego Fellowship
- 2008 NEIU Bernard Brommel Doctoral Scholarship
- 2007 Woods Hole Oceanographic Institution (WHOI) Minority Fellow
- 2007 University of Chicago Post-Baccalaureate Research Education Program (PREP) Scholar

## TEACHING EXPERIENCE

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- 2022 ***Principals of Ecology Lab***, 1 unit (1 section), Instructor, LUC SES
- 2021 ***Research Seminar***, 16 units (2 sections), Instructor, UAGro Biology
- 2021 ***Didactics of Biology***, 16 units (2 sections), Instructor, UAGro Biology
- 2020 ***Towards Coupled Socioenvironmental Systems***, 8 units, Instructor, UAGro Master’s Program in Natural Resources & Ecology
- 2019-2020 ***Biodiversity and Conservation***, 8 units, Co-Instructor, UAGro Master’s Program in Natural Resources & Ecology
- 2019 ***Indigenous Peoples and Environment***, 3 units, Co-Instructor, USD Political Science
- 2019 ***Decolonizing Science, Faith & Environmental Justice***, 3 units, Co-Instructor, USD cross-listed course in Environmental & Ocean Science (EOSC) and Theology (THRS)
- 2018-2017 ***Organisms and Ecosystems***, 5 units, Instructor Lecture/Lab, USD EOSC
- 2017-2016 ***Science and Critical Analysis of Environmental Justice***, 4 units, Co-Instructor, UC – San Diego cross-listed course in SIO and Ethnic Studies

## PUBLICATIONS

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### ***Peer-reviewed***

- Vargas-Añorve J, **Brito-Millán M**, Almazán-Núñez RC, Rodríguez D, and A Méndez-Bahena. *Demographic, spatial, and ecological aspects of *Peltogyne mexicana* - a threatened species – under different conditions of extraction in southern Mexico*. Annals of Forest Research, submitted.
- Alvarez-Alvarez E, Almazán-Núñez RC, Corcuera P, Gonzalez-García F, **M Brito-Millán**, and VM Alvarado-Castro. 2022 *Land use cover changes the bird distribution and functional groups at the local and landscape level in a Mexican shaded-coffee agroforestry system*. Agriculture, Ecosystems, and Environment. <https://doi.org/10.1016/j.agee.2022.107882>
- Méndez Bahena A, Domínguez Corona AR, Méndez Bahena NE, and **M Brito Millán**. 2021 *Turning outwards or inwards? The experience of a Mexican indigenous model of community-driven and intercultural education in a globalized world - La Universidad de los Pueblos del Sur*. Scholarship of Teaching and Learning in the South (SOTL) 5(1):107-128.
- Almazán Núñez RC, Alvarez E, Rodríguez R, Sierra P, Medina SA, Vázquez E, and **M Brito-Millán**. 2020 *Patterns of Bird Diversity and Endemism Along an Elevational Gradient in the Southern Mexican Highlands*. Zoological Studies <https://doi.org/10.6620/ZS.2020.59-69>.
- Alvarez-Alvarez E, Almazán-Núñez RC, González-García F, Méndez-Bahena A, García-Ibáñez S and **M Brito-Millán**. 2020 *Shade coffee plantations maintain woody plant diversity and structure of cloud forest landscapes in southern México*. Journal of Forestry Research <https://doi.org/10.1007/s11676-020-01143-5>.
- Brito-Millán M**, Vermeij MA, Alcantar EA, and SA Sandin. 2019 *Coral reef assessments based on coral cover alone mask active dynamics of coral communities*. Marine Ecology Progress Series 630: 55-68.
- Brito-Millán M**, Cheng T, Salomón A, Mendoza M, Belmonte M, Guzmán-Morales J, Martínez A, Harrison EJ, Quintanilla LJ, and RK Sugla. 2019 *Nosotros no comemos baterías: solidarity science against false climate change solutions*. Theme: The Return of Radical Science. Science for the People 22 (1): 33-41.
- Brito-Millán M**, Werner BT, Sandin SA, and DE McNamara. 2019 *Influence of aggregation on benthic coral reef spatio-temporal dynamics*. Royal Society Open Science 6: 181703.

### **Book chapters**

- Corrales Pablo, N., Nava Xinol, H., Rendón Godines, C., García Villanueva, R., Flores Feliciano, F., Andreu Marcos, J.S., Rayón Casarrubias, W., Hernández Tapia, V., Candido Juárez, FF., Tafoya Guerrero, C., Bolito González, A., Catalán Rodríguez, J., Marielle Meyer, C., Salazar Arredondo, S., Catalán Sánchez, L., **Brito Millán, M.**, Pardo Núñez, J. (2022) *Procesos formativos y organizativos en los sistemas comunitarios de manejo del ciclo Agua-Vida con enfoque de cuenca en la Montaña de Guerrero (Formative and organizational processes in community-driven management of Water-Life cycles with a watershed focus in the Mountain region of Guerrero)* CONACYT LIBRO PRONACE
- Flores Castro, A., Corrales Pablo, N., Rendón Godines, C., Bolito González, A., Hernández Tapia, M., Hernández Tapia, V., Lucas Bartolo, S., Nava Xinol, H., García Villanueva, R., Flores Feliciano, F., Rayón Casarrubias, W., Atempa Caltenco, L., Rayón Navez, G., Atempa Tolentino, F., Atempa Tolentino, E., Saldaña Santos, A., Villanueva Navarrete, S., Andreu Marcos, J.S., Flórez Jiménez, D., Jiménez Pablo, G., Marielle Meyer, C., Salazar Arredondo, S., Chávez Segura, P.G., Rodríguez Flores, L.N., Miranda Molina, M.A., and **M Brito Millán**. (2021). *Escuchando los ECCCOS - Epicentros*

*Comunitarios de Ciencias Campesinas – Caminos hacia la construcción de diálogos de saberes con y desde la Región Montaña de Guerrero. (Listening to the ECCCOS – Community Epicenters of Campesino Science – Journeys towards constructing knowledge dialogues with and from the Mountain Region of Guerrero)* Guardaletas Press.

Vargas-Añorve J, Méndez-Bahena A, Urbán-Lamadrid RG, Almazán-Núñez RC, **Brito-Millán M**, Solano-Díaz Z, and A Amador-García. (2021) *Condiciones ambientales y su efecto en la distribución de dos poblaciones de Peltogyne mexicana del estado de Guerrero, México*. Pgs 105-124 in Peralta Meixueiro MA, Ruan Soto JF, de la Cruz Chacón I, Pineda Diez de Bonilla E, Castro Moreno M, and BA Than Marchese, coordinators. *Estudios sobre la biodiversidad tropical mexicana: conservación y aprovechamiento sustentable*. Colección Jaguar UNICACH, México.

### ***Works in progress***

**Brito-Millán M**. *Pacific coral islander socioenvironmental systems from a complexity perspective: survivance, adaptability and indigenous world-making in the face of climate change*. Special Issue: Native, Black, Latinx, and gender studies responses to ecological catastrophe. Theory & Event. John Hopkins University Press, *near resubmission*.

**Brito-Millán M** and BT Werner. *A continuum model for the dynamics of coral reefs*. Physical Review E, *near submission*.

**Brito-Millán M** and Catalan Sanchez L. *Solidarity Science: integrating western scientific methodologies and local traditional knowledge via community-based monitoring of water quality in Guerrero*. Water Research, *in prep*.

**Brito-Millán M** and BT Werner. *Dynamical behavior of a coupled Indigenous societal-reef system*. Ecology & Society, *in prep*.

**Brito-Millán M**, Méndez Bahena A, and Almazán Núñez RC. *Modeling spatio-temporal dynamics of campesino socioenvironmental systems: coupling Mexican forest ecosystems and Indigenous cosmologies from the Sierra Madre del Sur*. Ecological Modelling, *in prep*.

### ***Public Outlets***

*Water Justice + Technology: The COVID-19 Crisis and Water “Relief” Policy*. New York University and AI Now Institute. Ed. Theodora Dryer. Release in January 2022.

*The Center for Interdisciplinary Environmental Justice’s Guiding Principles for Green New Deal Activists*. CIEJ Website. October 31, 2020.

*Lithium is the new oil*. Palestine in America Blog, in collaboration with Scientist of the Palestinian Youth Movement, CIEJ, Stop LAPD Spying Coalition, and Red Nation. December 4, 2019.

### **GRANTS & FUNDED PROJECTS**

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2021 \$1,500 USD, CONACYT Project Tecuani – Seeding Community-based science Grant  
2021 \$2,700 USD, Center for Interdisciplinary Environmental Justice Research Funds  
2020 \$55,000 USD, National Academy of Sciences/Ford Foundation Postdoctoral Fellow  
2019 \$55,000 USD, UC MEXUS/UAGro Postdoctoral Fellow  
2019 \$2,000 USD, Rachel’s Network Catalyst Award Nominee  
2019 \$1,500 USD, Enhanced Student-Faculty Interaction Funds  
2018 \$3,200 USD, Diversity Event Grant  
2018 \$2,000 USD, Further Foundation Research Grant

2017 \$120,000 USD, University of San Diego Diversity Postdoctoral Teaching Fellowship  
 2015 \$22,000 USD, UC President's Dissertation Year Fellowship  
 2014 \$15,000 USD, University of North Carolina - Wilmington Research Seed Funds  
 2012 \$5,000 USD, SIO Student Research Funds  
 2011 \$6,000 USD, SIO Oliver Family Research Funds  
 2010 \$1,000 USD, NSF GRFP Research Travel Funds  
 2009 \$140,000 USD, NSF Graduate Research Fellowship  
 2009 \$82,000 USD, Ford Foundation Predoctoral Fellowship  
2008 \$60,000 USD, UCSD San Diego Fellowship  
**TOT \$573,900 USD**

## INVITED LECTURES

***Solidarity Science Against False Climate Change Solutions. Upcoming Nov 2022.*** In Relations Research Methods Seminar Series, San Diego State University, International Virtual seminar.

***Planetary Health and Communities: Solidarity Science with Communities of Guerrero, Mexico. 2022.*** Falling Walls Engage Hub México, Universidad Autónoma Metropolitana Nodo México, Panel Invite, International Virtual meeting.

***Coral Reef Societies, Campesino Milpa and Complexity: Interweaving Ecology and Indigenous Lifeways towards Community-Driven Futures. 2021.*** Center for Native American and Indigenous Research, Northwestern University, Virtual seminar.

***Centro Interdisciplinario de Justicia Ambiental: hacia una Ciencia Solidaria. 2021.*** 8vo Coloquio Virtual en Psicología, Universidad Autónoma del Estado de Morelos, Virtual Conference.

***A Call to Defiance: Tools for Decolonial Feminist Science. 2020.*** Balancing social, economic, cultural and ecological objectives through Marine Spatial Planning. Interdisciplinary Early Career Network, Integrated Marine Biosphere Research, International Virtual meeting.

***Ecología y Modelado de Sistemas Socioambientales. 2019.*** Centro de Investigación y Posgrado en Estudios Socioterritoriales, Universidad Autónoma de Guerrero - Chilpancingo, GRO, México, In person Seminar.

***Embodiment through Resistance: The Extractive Industry and Its Consequences on Water in Latin America. 2019.*** American Association of Geographers Panel, Washington D.C., In-person Conference

***Settler Colonialism and Environmental Justice. 2019.*** American Association of Geographers Panel, Washington D.C., In-person Conference

***Deconstructing Objectivity in Science, 2019.*** Center for Educational Excellence, University of San Diego, CA, In-person Seminar

***Changing the Climate of Conversation: Environmental Justice Panel, 2018.*** University of San Diego, CA, In-person Seminar

***Voices of Transandean Resistance, 2018.*** Center for Interdisciplinary Environmental Justice - Environmental Justice Week, University of San Diego, San Diego, CA, Host of in-person Seminar



*Ecología y Dinámica de Sistemas Socio-ecológicos*. 2018. Universidad Autónoma de Guerrero - Chilpancingo, GRO, México, In person Seminar

*Collaborative Sustainability Science with Indigenous South American Communities of the Lithium Triangle*. 2018. USD - Center for Education Excellence, San Diego, CA, In person Seminar

*Environmental Justice & Decolonization*. 2018. Enero Zapatista, San Diego, CA, In person Seminar

*Intersectionality and Advocacy*. 2017. SACNAS Panel, Salt Lake City, UT, In person Conference

*Mobilizing Expertise for Advocacy and Social Change*. 2017. SACNAS Panel, Salt Lake City, UT

*Finding the beat of my DefianceResilienceUniqueMentorshipSolidarity into science*. 2017. STARS Symposium Keynote, La Jolla, CA, In person Conference

*My Journey from Gangs to Science*.

- North Lake Middle School, North Lake, IL (450 students), 2014.
- MacArthur Middle School, Berkeley, IL (500 students), 2014.
- Dare to Dream: Get Educated STEM Conference, Keynote address, Chicago, IL, 2013.
- Arroyo Paseo Charter High School Commencement address, San Diego, CA, 2013.

#### CONFERENCE PRESENTATIONS

Brito-Millán, M, Cheng, A, Harrison, E, Quintanilla, L, Salomón, A, Chavez, P. 2021 **#Decolonize4Climate: Beyond an Extractive Energy Transition** in Scaling the Ethical Plateaus of Energy Justice, Society for Social Studies of Science - 4S

Brito-Millán, M. 2020. **Complex systems modeling of Indigenous Pacific Islander-reef systems: a quantitative investigation of dynamical relationships leading to biocultural stability**. Ford Foundation Conference of Ford Fellows

Brito-Millán, M. 2020. **The view from the other side: Ocean grabbing, environmental justice, and the dignified resurgence towards decolonized autonomous lifeworlds**. Interdisciplinary Marine Early Career Network (IMECaN) of the Integrated Marine Biosphere Research (IMBR), International Virtual meeting

Salomón A, Werner BT, Brito-Millán, M., Fuste JI, Figueroa YC, and C Miller. 2019. **Cartographies of Black, Indigenous, Migrant, and Latinx Resistance and Regeneration**. American Studies Association, Honolulu, HI

Brito-Millán, M, Quintanilla, LJ, Ng, JY, Salomón, A, Harrison, E and RK Sugla. 2019. **Decolonial Feminist Science Methods for Indigenous Resistance to Extraction in the Lithium Triangle**. American Association of Geographers, Washington D.C.

Brito-Millán, M. 2019. **Climate Change Resistance in Indigenous Islander Societies**. Western Political Science Association Annual Meeting, San Diego, CA

Brito-Millán, M, BT Werner, SA Sandin. 2016. **Dynamical Modeling of Coupled Societal-Coral Reef Systems**. 13<sup>th</sup> International Coral Reef Symposium, Honolulu, HI

Brito-Millán, M, BT Werner, SA Sandin, DE McNamara. 2016. *Influence of Aggregation on Benthic Reefscape Dynamics*. SIO Research Symposium, La Jolla, CA

Brito-Millán, M and SA Sandin. 2012. *Role of Coral Spatial Aggregation in Coral Reef Benthic Dynamics*. SACNAS, Seattle, WA

Brito-Millán, M, PL Tyack, WX Zimmer. 2008. *Do North Atlantic Right Whales compensate for short-term increases in ambient noise?* 17<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Society for Marine Mammalogy, Cape Town, South Africa

Brito-Millán, M, and EM Maldonado. 2007. *Effects of food availability on growth and development of *Lytechinus pictus*, the White Urchin*. Association for the Sciences of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe, NM

#### THESES DIRECTED

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- 2022 Estefani Gatica Cortes, CONACYT Master of Science Fellow (current Co-chair)  
“Sustainability of the palm *Brahea dulcis* within socio-ecological cycles under contrasting management regimes in the localities of Azatatepec, Acateyahualco, and Xochipala, Guerrero Mexico”
- 2022 Arlette Lisseth Sánchez Gallegos, CONACYT Master of Science Fellow (current Chair)  
“Modeling spatial-temporal dynamics of subtropical deciduous forest ecosystems in the locality of Xochipala, Guerrero Mexico via a cellular automaton”
- 2022 Larissa Catalán Sánchez, UAGro Undergraduate Thesis in Biology (current Chair)  
“Solidarity Science: scientific methods for community-driven evaluation of waterscape ecological, physicochemical, and microbiological quality in the Indigenous Mountain region of Guerrero, México”
- 2022 Yorllet Jimenez Pineda, CONACYT Master of Science Fellow (current Co-chair)  
“Community monitoring to promote the human right to water in three micro-watersheds of the intercultural municipality of Ayutla de los Libres, Guerrero Mexico”
- 2019 Amayrani Salgado Nolasco, CONACYT Master of Science Fellow (current Co-chair)  
“Effects of climate change and change in land use on the availability of water resources in the Rio Huacapa watershed”
- 2017 Kiana Lindsey, USD Honors Undergraduate Thesis (completed - Chair)  
“Human-Wildlife Conflict in Tanzania: Environmental Justice Impacts of Colonialism in East Africa”

#### PROFESSIONAL SERVICE

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Journal Reviewer: PeerJ (IF 2.984), Ecological Modelling (IF 2.634), Coral Reefs (IF 3.631)

Admissions Committees: CONACYT PIES AGILES (agroecology) Fellow’s selection committee

#### PROFESSIONAL MEMBERSHIPS

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Sociedad Científica Mexicana de Ecología, A.C. (SCME)

American Association of Geographers (AAG)

American Studies Association (ASA)

Society for the Advancement of Chicanos & Native Americans (SACNAS)

SIO Center for Marine Biology and Conservation (CMBC)

International Society of Reef Studies (ISRS)

Ecological Society of America (ESA)

#### SELECTED SERVICE & OUTREACH

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Water Quality Community-based Monitoring – Co-Coordinator / Project Scientist, 2021 – present

- Developed water quality protocols and coordinated training workshops for the co-construction of locally led community-monitoring in various Indigenous communities in the mountain region of Guerrero, Mexico.

Center for Interdisciplinary Environmental Justice (CIJA) – **Co-Founder**, 2014 – present

- CIEJ is a groundbreaking collective of natural and social science activist scholars scientifically supporting environmental justice struggles for land/water/life; employs intersectional research justice framework.
- Organized a U.S. visit by Indigenous representatives from the South American Andean highlands of Chile (Atacama) and Argentina (Kolla) for a series of cross-institutional public presentations discussing the devastating ecological and cultural impacts of lithium mining for “green battery tech”.
- Established a socio-ecological monitoring program alongside Indigenous partners that included quantitative protocols to characterize culturally significant and ecologically important salt lagoon systems: Laguna Tebenquiche, Chile and Salinas Grandes y Laguna de Guayatoyoc, Argentina.

Ethnobotany with Indigenous Kumeyaay situated on the Mexico side of the US/Mexico borderlands in Juntas de Nejí, México – **Organizer/Coordinator**, 2019

- Organized ethnobotany and environmental-justice focused field trips within USD curriculum.
- Partnership supported the various Kumeyaay-led cultural revitalization and communal protected areas that prevent further land encroachment by ranchers.

USD STEM & Social Justice Pedagogy Working Group – **Facilitator and Member**, 2018 – 2019

- Facilitated workshops guiding faculty from various STEM departments through pedagogical methods of integrating social justice and decolonial perspectives into their science classrooms.

USD Decolonization Working Group – **Co-organizer**, 2017 – 2019

- Collectively organized events along with faculty, students, and staff to engage the USD community in dialogue around systemic erasure and sustained violence towards Indigenous Peoples, for example – Indigenous People’s Day.

Reality Changers Project – **Tutor/Mentor and Job Shadow Host** for inner-city youth, 2010 – 2017

## OTHER SKILLS

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*Programs:*

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|---------------------|-------------------------|
| ○ Matlab            | ○ MS Office             |
| ○ Octave            | ○ LibreOffice           |
| ○ R                 | ○ Photoshop             |
| ○ LaTeX (TeXstudio) | ○ Wordpress (web)       |
| ○ ArcGIS            | ○ Miro                  |
| ○ QGIS              | ○ Digital video editing |

*Languages:* Native Spanish and English speaker – oral, reading, and writing

*Other:*

- SCUBA certified (Scientific Diver / Rescue)
- Experience with Institutional Review Board (IRB) process resulting in approval
- Facilitator in participatory training workshops characterizing soil health using Pfeiffer chromatography and water quality using Petrifilm Plates and multiparameter equipment (e.g., Hach, Horiba)
- Mother of two elementary-school children