

Michelle A. Bardales Cruz

University of Central Florida
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EDUCATIONAL BACKGROUND:

Emory University, Atlanta, GA

Bachelor of Science in Environmental Sciences, Quantitative Sciences minor December 2021

Cumulative GPA: 3.9/4.0

University of Central Florida, Orlando, FL

Master of Science in Biology May 2025

Relevant Coursework: Introductory Ecology, Biology, Physics, and Statistical Inference; Organic Chemistry; Methods in Experimental Ecology I; Programming for Biologists; Environmental Field Studies; Marine Ecology; Ecology of the Tropics; Fundamentals of Cartography and GIS; Quantitative Methods in Environmental Science; Environmental Data Science; Technical Writing

RESEARCH EXPERIENCE:

University of Central Florida, Orlando, FL

Aug. 2022 – Present

Department of Biology, Supervisor: Dr. David Jenkins

MS in Biology Graduate Student

- Explore predictors of human appropriated net primary production with Bayesian statistics and spatiotemporal models using R.

Emory University, Atlanta, GA

Sept. 2019 – May 2022

Department of Environmental Sciences, Supervisor: Dr. Eri Saikawa

Undergraduate Student Researcher

- Analyze data from Guatemala on domestic plastic waste burning to estimate and map emissions at the local and departmental level using R.
- Assisted with the collection of soil and sunflower samples for the measurement of soil pollution and bioremediation in the West Atlanta area.

Summer Undergraduate Research Experience (SURE), Atlanta, GA June 2020 – Aug. 2020

Emory University, Department of Environmental Sciences, Supervisor: Dr. Eri Saikawa

Undergraduate Student Researcher

- Analyzed the effects of waste reduction workshops on plastic waste generation and of waste management infrastructure, or lack thereof, on the extent of domestic plastic waste burning in urban versus rural areas in Guatemala using statistical analyses.

Bok Tower Gardens, Lake Wales, FL

May 2019 – Aug. 2019

Conservation Research Volunteer

- Conducted polymerase chain reactions (PCR) and gel electrophoresis to determine the genetic diversity of *Campanula* plants and inform conservation efforts in Central Florida.
- Collected data on ~1000 *Campanula* seeds per week by recording the number of seeds per seed pod and per plant.

RELATED PROFESSIONAL EXPERIENCE**University of Central Florida, Orlando, FL**

Aug. 2022 – Present

Graduate Teaching Assistant

- Assist students with questions on content and technical issues in virtual introductory biology lab courses on SecondLife for 10 hours per week.

Circle B Bar Reserve, Lakeland, FL*Environmental Science Intern*

Feb. 2022 – Aug. 2022

Environmental Science Volunteer

Sept. 2022 – Present

- Monitored the rare plant *Polygala lewtonii* by identifying and counting plants in each quadrat at Crooked Lake Sandhill.
- Monitored gopher tortoises using ArcGIS Survey 123 and ArcGIS Field Maps to map locations of dead gopher tortoise shells at Crooked Lake Prairie.
- Monitored sand skinks by setting out plywood boards and checking for sand skink tracks underneath the boards at Crooked Lake Sandhill and Hickory Lake Scrub.
- Monitored birds, including kestrels and Bachman's sparrows at SUMICA and Florida scrub jays at Crooked Lake West by using binoculars and identifying bird calls.
- Surveyed gopher tortoise burrows by measuring burrow width; identifying burrows as active, inactive, or abandoned; and mapping locations of burrows using ArcGIS Survey 123 and ArcGIS Field Maps at Lakeland Highland Scrub.
- Tracked gopher tortoises using radio telemetry tools, including a receiver and antenna to detect transmitters on gopher tortoises onsite.
- Fed and released waif gopher tortoises onsite.
- Surveyed populations of ~20 small and wading bird species using eBird at Marshall Hampton Reserve.
- Mapped wildlife-vehicle crashes in Polk County by inputting data into Excel and using ArcMap 10.7.1.
- Analyzed quarterly water level data in Polk County lakes from 1940 to 2022 by creating pivot tables using Excel.
- Analyzed change in water quality over time at inflows and outflows of Banana Creek Marsh in Polk County by creating charts and trendlines of water quality data.
- Changed SD cards for ~30 game cameras used for monitoring gopher tortoise and other animals onsite every 1 month.
- Uploaded and entered data for ~5000 game camera pictures into Excel every 1 month.

Environmental Education Intern

June 2019 – Aug. 2019

- Developed 5 environmental science activity kits for teachers to use in K-12 classrooms.
- Managed the Ranger Station to inform passing visitors about the reserve, Florida ecology, and the plants and animals onsite, including identifying wetland bird species.
- Waded through the swamp and assisted students with dipnetting.

El Dorado County Democrats, South Lake Tahoe, CA

June 2021 – Aug. 2021

Environmental Communications Intern

- Created a 40-page booklet, *Living Green in El Dorado County - A Resource for Residents*, to inform El Dorado County residents on sustainable living practices.
- Researched and documented El Dorado County conservation groups, resources, and protocols for recycling, composting, going solar, and electric cars.

ABSTRACTS/PRESENTATIONS:

Bardales, M., Saikawa, E., Thompson, L., and Hengstermann, M. Emissions of Carbon Dioxide and Fine Particulate Matter from the Domestic Open Burning of Plastic Waste in Rural and Urban Areas of Guatemala. A206-04. American Geophysical Union Fall Meeting 2020. Oral presentation delivered at the American Geophysical Union, Fall Meeting 2020, December 2020.

Bardales, M., Saikawa, E., Thompson, L., and Hengstermann, M. Emissions of Fine Particulate Matter from Domestic Open Burning of Plastic Waste in Rural and Urban Areas in Guatemala. Summer Undergraduate Research Experience (SURE) Symposium, 2020. Oral presentation delivered at the Emory University SURE Symposium, Atlanta, GA, August 2020.

LEADERSHIP/SERVICE:

Volunteer Emory, Emory University, Atlanta, GA Sept. 2018 – Mar. 2020
Weekly Service Trip Co-leader and General Body Member

- Co-led a weekly service trip to Mercy Community Church to prepare and serve food for people experiencing homelessness in Atlanta.
- Planted trees and shrubs at local elementary schools to support environmental education programs.

Emory Food Chain, Emory University, Atlanta, GA Sept. 2018 – Mar. 2020
Shift Leader and General Body Member

- Collected leftover food from the Emory University cafeteria and Whole Foods and delivered to Bread Coffeehouse, an on-campus organization that helps provide meals for food insecure students on campus.

Ben Franklin Academy, Atlanta, GA Sept. 2019 – Dec. 2019
Student Intern

- Proofread and edited students' English papers.
- Tracked 10 student's weekly, monthly, and semester goals and progress.

TECHNICAL SKILLS:

Computational: R; Microsoft Word, Excel, and PowerPoint; ArcGIS; ArcGIS Survey 123; ArcGIS Field Maps; ArcMap; LaTeX; basic SQL, NCL, and Tableau

Field Data Collection: Plant, bird, gopher tortoise, and sand skink monitoring; eBird; Tree surveying; Southeastern US tree and bird identification

Wet Laboratory: PCR; agarose gel electrophoresis; liquid-liquid extraction; plating microbes; using yeast and *C.elegans* as model organisms; gravity filtration; thin-layer chromatography; melting point determination; simple and fractional distillation

LANGUAGES:

Spanish (fluent)
German (intermediate)