

Bolívar Aponte Rolón

ECOLOGIST · DATA SCIENTIST · BIOINFORMATICIAN

Grinell, Iowa 50112

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🎓 Education

Doctor of Philosophy

New Orleans, LA

TULANE UNIVERSITY, DEPARTMENT OF ECOLOGY AND BIOLOGY

2018 – 2024

- Committee members: Sunshine Van Bael, Ph.D. (advisor; dissertation chair), Kathleen Ferris, Ph.D. (co-advisor), Keith Clay, Ph.D., & P. Camilo Zalamea, Ph.D.

Master of Science

Ann Arbor, MI

UNIVERSITY OF MICHIGAN – ANN ARBOR, SCHOOL FOR THE ENVIRONMENT AND SUSTAINABILITY

- Major: Conservation Ecology

Bachelor of Arts

San Juan, Puerto Rico

UNIVERSITY OF PUERTO RICO – RIO PIEDRAS

- Major: Political Science (Magna Cum Laude)

🧠 Skills

⚙️ Technical

Leadership

Effective communication, Decision-Making, & Critical thinking

Programming/Interface

R, Python, SQL, Bash, LaTeX, Markdown

Data Reporting

Quarto, Shiny

OS/Shell Experience

Linux, PowerShell, WSL

Cloud Computing

CentOS 7 HPC

Data Wrangling and Visualization

tidyverse, *ggplot2*, Tableau

Version Control

Git and GitHub

Bioinformatic Tools

GATK, samtools, cutadapt, Trimmomatic, *phyloseq* and *microeco*

🗣️ Languages

Spanish English Portuguese

Native

Fluent

Fluent

📄 Peer-Reviewed Publications

- Aponte Rolón, B., & Perfecto, I. (2023). Between two trees: Environmental effects of *I. Micheliana* and *A. Latifolia* on leaf litter ants in a coffee agroecosystem. *Ecosphere*, 14(2), e4442. <https://doi.org/10.1002/ecs2.4442>
- Dáttilo, W., Vásquez-Bolaños, M., Ahuatzin, D. A., Antoniazzi, R., Chávez-González, E., Corro, E., ... MacGregor-Fors, I. (2020). Mexico ants: Incidence and abundance along the Nearctic–Neotropical interface. *Ecology*, 101(4), e02944. <https://doi.org/10.1002/ecy.2944>
- Dáttilo, W., Vásquez-Bolaños, M., Ahuatzin, D. A., Antoniazzi, R., Chávez-González, E., Corro, E., ... MacGregor-Fors, I. (2020). Mexico's Ants: Who are They and Where do They Live? *The Bulletin of the Ecological Society of America*, 101(2), e01666. <https://doi.org/10.1002/bes2.1666>
- Schmitt, L., Aponte Rolón, B., & Perfecto, I. (2020). Evaluating community effects of a Keystone Ant, *Azteca sericeasur*, on *Inga micheliana* leaf litter decomposition in a shaded coffee agro-ecosystem. *Biotropica*, 52(6), 1253–1261. <https://doi.org/10.1111/btp.12833>

Other Publications

- Aponte Rolón, B.**, Arnold, A. E., Sánchez Juliá, M., & Van Bael, S. A. (2024). *Evaluating the Role of Endophyte-Rich Leaves in Protecting Tropical Trees Against a Generalist Herbivore and a Pathogen*. <https://doi.org/10.1101/2024.04.18.589827>
- Dong, C. M., **Aponte Rolón, B.**, Sullivan, J. K., Tataru, D., Deleon, M., Dennis, R., ... Ferris, K. G. (2024). *Short-term fluctuating and long-term divergent selection on sympatric Monkeyflowers: Insights from decade-spanning reciprocal transplants*. <https://doi.org/10.1101/2024.06.26.600870>
- Aponte Rolón, B.** (2023). *High-Molecular-Weight SPRI-aided DNA extraction from Mimulus (Phrymaceae) leaf tissue*. [dx.doi.org/10.17504/protocols.io.bp2l6xn8rlqe/v2](https://doi.org/10.17504/protocols.io.bp2l6xn8rlqe/v2).
- Pérez-Figueroa, O., & **Aponte Rolón, B.** (2020). Clashing Resilience: Competing Agendas for Recovery after the Puerto Rican Hurricanes • SftP Magazine. *Science for the People Magazine*, 23(1).

Research Experience

Ecology and Evolutionary Biology

Tulane University, New Orleans, LA

DOCTORAL RESEARCH

2018-2024

- “Evaluating the Role of Endophyte-Rich Leaves in Protecting Tropical Trees Against a Generalist Herbivore and a Pathogen” (in prep)
- “Foliar Endophytic Fungi in Yellow Monkeyflowers Along an Elevational Gradient in the Sierra Nevada, CA” (in prep)
- “Leaf Functional Trait Plasticity and Foliar Endophytic Fungi in Yellow Monkeyflowers: Linking Traits and Symbionts to Genes” (in prep)
- PI, Sunshine Van Bael Ph.D. & Kathleen Ferris, Ph.D.

School for the Environment and Sustainability

University of Michigan, Ann Arbor, MI

MASTER’S THESIS

2016-2018

- “Impacts of quality of leaf-litter on ant assemblages in shade-grown coffee in the Soconusco region in Chiapas, Mexico”
- PI, Ivette Perfecto, Ph. D.

School for the Environment and Sustainability

University of Michigan, Ann Arbor, MI

GRADUATE STUDENT RESEARCH ASSISTANT

Jan. – May 2016

- “Impacts of quality of leaf-litter on ant assemblages in shade-grown coffee in the Soconusco region in Chiapas, Mexico”
- PI, Ivette Perfecto, Ph. D.

Department of Chemistry

University of Puerto Rico, San Juan, PR

UNDERGRADUATE RESEARCH ASSISTANT

Jan. – May 2014

- Conducted GC-MS and QuEChERS methods in development of an analytical methodology for the detection of Hypoglycin A in Ackee Fruit (*Blighia sapida*).
- Worked in the characterization of Ackee Fruit and applied the QuEChERS method to analyze analyte properties
- PI, Liz Díaz, Ph. D.

Department of Chemistry

University of Puerto Rico, San Juan, PR

UNDERGRADUATE RESEARCH ASSISTANT

Jun. – Jul. 2013

- Characterized and assessed marine algae as sources for biofuels, plastics, electrodes and bioindicators.
- Conducted a simultaneous assay of pigments, carbohydrates, proteins and lipids of *Tricleocarpa cylindrica*.
- PI, Liz Díaz, Ph. D.

Center for Landscape Conservation, Inc.

San Juan, Puerto Rico

UNDERGRADUATE RESEARCH ASSISTANT

July 2013

- “Rapid Ethnographic Assessment in El Yunque: Understanding local visitors’ willingness and capacity to collaborate in the revision of EYNF’s Management Plan”
- PI, Federico Cintrón-Moscoso, Ph. D.

Teaching Experience

Tulane University: 2018-2024

Instructor

- October 2023 | *Introduction to Version Control with Git and GitHub*. Developed by **B. Aponte Rolón** for the Howard-Tilton Memorial Library, Tulane University, New Orleans, LA.
- October 2023 | *Introduction to Data Visualization in R*. Developed by **B. Aponte Rolón** for the Howard-Tilton Memorial Library, Tulane University, New Orleans, LA.
- October 2023 | *Introduction to R, Part 1*. Developed by Mike Ellis for the Howard-Tilton Memorial Library, Tulane University, New Orleans, LA.

Teaching Assistant

- Spring 2024 | **Diversity of Life - EBIO 1010**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Fall 2023 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Summer 2023 | **Tropical Field Biology - EBIO 3780**. Dr. Sunshine Van Bael, Department of Ecology and Evolutionary Biology.
- Spring 2023 | **Natural History of Louisiana - EBIO 2330**. Dr. Donata Henry, Department of Ecology and Evolutionary Biology.
- Spring 2023 | **Theory and Methods in Ecology and Evolutionary Biology - EBIO 2020**. Dr. Donata Henry, Department of Ecology and Evolutionary Biology.
- Fall 2022 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Spring 2022 | **Insects and Human Interactions – EBIO 2210**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Fall 2021 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Spring 2021 | **Plants and Human Affairs – EBIO 3180/3185**. Dr. Keith Clay, Department of Ecology and Evolutionary Biology.
- Fall 2020 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Spring 2020 | **Plant Biology and Adaptation - EBIO 3590/3591**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Fall 2019 | **Plants and Human Affairs – EBIO 3180/3185**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Spring 2019 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.
- Fall 2018 | **Diversity of Life - EBIO 1010**. Dr. Donata Henry, Department of Ecology and Evolutionary Biology.

Guest Lectures

- Summer 2023 | **Tropical Field Biology - EBIO 3780**, Dr. Sunshine Van Bael, Department of Ecology and Evolutionary Biology.
- Fall 2021 | **Tropical Biology – EBIO 2110**, Dr. Renata Durães Ribeiro, Department of Ecology and Evolutionary Biology.
- Fall 2021 | **Entomology – EBIO 4430/4431**. Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.

- Fall 2019 | **Plants and Human Affairs – EBIO 3180/3185.** Dr. Jelagat Cheruiyot, Department of Ecology and Evolutionary Biology.

University of Michigan: 2016 - 2017

- Fall 2017 | **NRE 509: Ecology: Concepts and Applications.** Dr. Sheila K. Schueller, School for the Environment and Sustainability.
- Fall 2016 | **ENVIRON 270: Our Common Future.** Dr. Ivette Perfecto, Program in The Environment, College of Literature, Science and the Arts.

Offices and Other Experience

Connolly Alexander Institute for Data Science

DATA LAB MANAGER/PRODUCT DEVELOPER

Jan. – May 2024

Howard-Tilton Memorial Library,

INSTRUCTOR

Sept. – Dec. 2023

Tulanians Who Enjoy R Coding (TWERC)

COORDINATOR

2023-2024

AmeriCorps STATE

URBAN AGRICULTURE INSTRUCTOR

2014-2015

Consejo de Educación Popular de América Latina y el Caribe (CEAAL)

LIASON

2013-2015

General Student Council Directive

ALTERNATE REPRESENTATIVE

2011-2012

Honors Program Student Association (AEPREH)

PRESIDENT

2011-2012

Honors Program Student Association (AEPREH)

VICE-PRESIDENT

2010-2011

Social Sciences College Student Action Committee

COORDINATOR

2010-2011

La Nueva Escuela

COLLABORATOR

2010-2015

Grants and Fellowships

2020, 2021, 2022

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Tulane University, New Orleans, LA.

Student Research Grant

2021-2022

OFFICE OF GRADUATE AND POST-DOCTORAL STUDIES

Tulane University, New Orleans, LA.

OGPS Fellowship

2017

RACKHAM GRADUATE SCHOOL

University of Michigan, Ann Arbor, MI.

Rackham International Research Award

2017

RACKHAM GRADUATE SCHOOL

University of Michigan, Ann Arbor, MI.

Rackham Conference Travel Grant

Awards & Honors

Steven P. Darwin Outstanding Teaching Assistant Award

EXCEPTIONAL TEACHING OF AN UPPER LEVEL COURSE

Tulane University, New Orleans, LA

May 2024

The Connolly Alexander Institute for Data Science

SUMMER GRADUATE AWARD

Tulane University, New Orleans, LA

June 2023

Graduate Studies Student Association

TRAVEL AWARD

Tulane University, New Orleans, LA

May 2023

School of Science and Engineering

DEAN'S TRAVEL AWARD

Tulane University, New Orleans, LA

May 2023

Graduate Studies Student Association

TRAVEL AWARD

Tulane University, New Orleans, LA

May 2022

School of Science and Engineering

DEAN'S TRAVEL AWARD

Tulane University, New Orleans, LA

April 2022

School for the Environment and Sustainability

JEFFREY LUND FOREST ECOLOGY AWARD

University of Michigan, Ann Arbor, MI

April 2017

- Annual award for academic excellence, research capability and professional promise.

Conference Presentations and Posters

Aponte Rolón, B. (2023 June). *Oral Presentation*: "Foliar fungal symbionts in sympatric yellow monkeyflowers along an elevational gradient". Evolution 2023, Albuquerque, NM.

Aponte Rolón, B. (2023 March). *Poster*: "The Influence of host genotype and leaf trait plasticity on foliar fungal endophytes of yellow monkeyflowers in Yosemite National Park, CA". Collaborators: Kathleen Ferris & Sunshine Van Bael. Tulane Research, Innovation, and Creativity Summit (TRICS), Jung Hotel Grand Hall, New Orleans, LA.

Aponte Rolón, B. (2022 July). *Oral Presentation*: "Interactions between functional leaf traits and foliar endophytes in the defense against natural enemies of tropical trees" (ID: 358). The 58th Meeting of the Association for Tropical Biology and Conservation (ATBC 2022), Cartagena de Indias, Colombia.

Aponte Rolón, B. (2022 May). *Poster*: "The Influence of host genotype and leaf trait plasticity on foliar fungal endophytes of yellow monkeyflowers in Yosemite National Park, CA". Collaborators: Kathleen Ferris & Sunshine Van Bael. Yosemite Symbiosis Workshop. Wawona, CA, USA.

Aponte Rolón, B. (2020 July). *Graphical Abstract*: "Investigating trade-offs and complementarity between functional leaf traits and foliar endophytic fungi in the defense against plant enemies of tropical woody plants". Collaborators: A. Elizabeth Arnold, and Sunshine Van Bael. The Mycological Society of America's First Virtual Meeting, MSA 2020: Mycology from the Cloud (virtual).

Aponte Rolón, B. (2019 May). *Poster*: "Leaf and Root Endophytes of Mangroves in Southwestern Florida Everglades". Collaborators: Mareli Sánchez Juliá, Edward Castañeda, John Kominoski, & Sunshine Van Bael. Florida Coastal Everglades LTER All Scientists Meeting. Fairchild Tropical Botanic Garden, Miami, Florida.

Aponte Rolón, B. (2017 October). *Poster*: "Quality of leaf-litter and ant assemblages in shade-grown coffee in Chiapas, Mexico", Collaborator: Ivette Perfecto. Student Conference on Conservation Science-New York (SCCS-NY), American Museum of Natural History in New York City.

Aponte Rolón, B. (2017 July). *Poster*: "Impacts of quality of leaf-litter on ant assemblages in shade-grown coffee in Chiapas, Mexico", Collaborator: Ivette Perfecto. 54th Annual Meeting of the Association for Tropical Biology and Conservation, "Ecological and Social Dimensions of Tropical Biodiversity Conservation", Merida, Yucatan, Mexico.

Aponte Rolón, B. (2014 May). *Poster: “El efecto del Curcumin en la señalización celular de Artritis Psoriática”* [The Effect of Curcumin on cell signaling of Psoriatic Arthritis]. (With Carrero Feliciano, Heysel M.; Hall Laureano, Stephanie; Montes González, Ingrid, PhD.) Annual poster presentation of the American Chemical Society, Puerto Rico Chapter, University of Puerto Rico, Río Piedras Campus, San Juan, Puerto Rico.

Seminars & Workshops

Delegate (Aug. Sept. 2014): “*Encuentro latinoamericano y caribeño: asamblea intermedia*”. [Intermediate Assembly of the *Consejo de Educación Popular de América Latina y el Caribe-CEAAL*]. Quito, Ecuador.

Delegate (October 2013): “*Rumbo a la asamblea intermedia*”. Sponsored by the *Consejo de Educación Popular de América Latina y el Caribe-CEAAL*. Santo Domingo, Dominican Republic.

Organizer (August 2013): “*Primer Encuentro Nacional de Educadores(as) Populares de Puerto Rico*”. Sponsored by *Consejo de Educación Popular de América Latina y el Caribe-CEAAL*, Pontifical Catholic University of Puerto Rico, Ponce, Puerto Rico.

Workshop Developer (August 2013): “*Educación Popular y Liberación Nacional*” [Workshop on Popular Education and National Liberation] Sponsored by *La Nueva Escuela* at *Primer Encuentro Nacional de Educadores(as) Populares de Puerto Rico*. Pontifical Catholic University of Puerto Rico, Ponce, Puerto Rico.

Facilitator & organizer (March 2012): “*Sexto Campamento de Jóvenes: Educando para una nueva Patria*” [Summit on Popular Education Critical Ideologies, Racism & Xenophobia]. *La Nueva Escuela*, Peñuelas, Puerto Rico.

Organizer (March 2012): “*Debates y perspectivas en la construcción de una reforma universitaria inclusiva*”. Sponsored by Honors Program Student Association (AEPREH), University of Puerto Rico, Río Piedras Campus. Social Sciences Faculty, University of Puerto Rico, Río Piedras Campus, San Juan Puerto Rico.

Round table (July 2012): “*Puerto Rico: a brief historical account*”. Second International Summit “*Entre las Crisis y Otros Mundos Posibles*” of the Transnational Network of Other Knowledges. Sponsored by *Centro de Investigaciones y Estudios Superiores en Antropología Social* (CIESAS), CIDECI Las Casas/ UNITIERRA-Chiapas, San Cristóbal de las Casas, Chiapas, México.

Workshop Developer (September 2010): “*Taller de Educación Popular*” [Workshop on Popular Education]. *La Nueva Escuela* at The University of Puerto Rico, Río Piedras Campus, San Juan, Puerto Rico.

Workshop Developer (May 2010): “*Taller de Educación Popular y el Movimiento Estudiantil*” [Workshop on Popular Education and the Student Movement]. *La Nueva Escuela* at The University of Puerto Rico, Río Piedras Campus, San Juan, Puerto Rico.

Outreach

FIRST

Bayou Regional, New orleans, LA

FIRST ROBOTICS COMPETITION

2022

- Volunteer in robotics competition for high school students

Yosemite Conservancy

Yosemite National Park

NATURE TALK

2022

- Led public on nature walk and art activity to examine functional significance of leaf shapes.

University of Michigan

Finca Irlanda, Soconusco, Chiapas, Mexico

EcoDIA

2017

- Developed and executed a science communication day for the school.