Guido A. Herrera-R. | CV

Updated October 2024

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Education

Ph.D. Ecology & Evolutionary Biology

2020 -

The University of Tennessee

Knoxville, TN

Advisor: Dr. Xingli Giam

M.Sc. Modeling of Ecological Systems

2016 - 2018

University of Toulouse III Paul Sabatier

Toulouse, France

Honors (1st year) & Highest Honors (2nd year)

Thesis: Combined effects of climate change and fragmentation by dams in Andean Amazon fishes.

Advisor: Dr. Pablo A. Tedesco

2011 - 2015

Pontifical Javeriana University

B.Sc. Biology

Bogotá, Colombia

<u>Thesis:</u> High endemism areas of fishes in the Colombian Andean Orinoco region inferred from species distribution models.

Advisor: Dr. Javier A. Maldonado-Ocampo†

Research and Work Experience

Consultant Jul-Sep 2023

Wildlife Conservation Society (WCS) - Andes-Amazon-Orinoco (AAO) regional program "Analysis of the potential of the Ictio dataset to contribute to fisheries monitoring at scale"

Remote, US

Supervisor: Dr. Sannie Brum

Graduate Research Assistant

Jan - Sep 2023

Conservation Ecology Lab, The University of Tennessee

Knoxville, TN

SE CASC project: Climate- and land-cover-induced shifts in the distribution and abundance of invasive fish and their impacts on native fish communities in the Tennessee and Cumberland River Basins

Supervisor: Dr. Xingli Giam

Laboratory Assistant

Oct 2018 - Dec 2019

Tropical Rivers Lab, Florida International University

Miami, FL

Supporting automated monitoring of water quality for the Amazon Citizen Science Project

Supervisor: Dr. Elizabeth Anderson

Research Assistant Jun - Sep 2018

Ecology & Biological Diversity Lab, Toulouse University III

Toulouse, France

Measuring fish functional traits from photos and updating a global trait database

Supervisors: Dr. Sébastien Brosse & Dr. Pablo A. Tedesco

Research Assistant Oct 2015

Humedales Foundation

Fish diversity characterization in the EMGESA campus around Mambita, Colombia

Bogotá, Colombia

Supervisor: Dr. Saúl Prada-Pedreros

Intern Jun - Aug 2015

REU in Tropical Ecology & Evolution

El Verde Field Station, Puerto Rico

<u>Project:</u> Factors regulating the distribution and abundance of Sicydium (Gobiidae: Perciformes) in headwater streams within El Yunque National Forest, Puerto Rico.

Advisor: Dr. Pedro J. Torres

Intern Jan - Jun 2014

Ichthyology Lab, Pontifical Javeriana University
Curatorial assistant for the fish collection at the Natural History Museum

Supervisor: Dr. Javier A. Maldonado-Ocampo†

Volunteer Jul 2013

Ecosystem Ecology Lab, Florida International University

Sample processing and mesocosm installation

Supervisor: Dr. John Kominoski

Submitted publications

Anderson, E., Encalada, A., Couto, T., Beveridge, C., **Herrera-R, G.A.**, Heilpern, S., Almeida, R., Cañas-Alva, C., Correa, S., Souza, L. de, Duponchelle, F., Garcia-Davila, C., Goulding, M., López-Casas, S., Maldonado-Ocampo, J., Miranda, G., Montoya, M., Piland, N., Victoria-Lacy, L., Varese, M., and Jenkins, C. "Conserving Freshwater Connectivity of the Western Amazon." In Review.

Jenkins, C., Athayde, S., Beveridge, C., Correa, S., Espinoza, J., Heilpern, S., **Herrera-R, G.A.**, Lacy, L., Olivas, P., Oliveira, A., Piland, N., Utsunomiya, R., and Anderson, E. "The Global Importance of Amazonian Freshwaters." In Review.

Mateus-Aguilar, B., Díaz-Salazar, A., Batista, N., Andrade-Rivas, F., Cárdenas-Navarrete, A., Dávila Arenas, A., Hernández, K., **Herrera-R, G.A.**, Langhans, K., Levey, D., Neill, A., Nguyen, O., Ocampo-Peñuela, N., Suárez-Castro, A., Zapata, F., and Echeverri, A. "Relationships Between Biodiversity and Cultural Diversity are Scale Dependent." In Review.

Rodrigues, A., Correa, S., Jézéquel, C., Lugo-Carvajal, A., Hugueny, B., Doria, C., Arantes, C., Bailly, D., Couto, E. do, **Herrera-R, G.A.**, Bogotá-Gregory, J., Azevedo, J., Zuanon, J., Coronado-Franco, K., Holmgren, M., Anjos, M., Sleen, P. van der, Silva, V., Vries, W. de, Consortium, The AmazonFish, and Tedesco, P. "Deforestation in Amazonian floodplains impacts fruit-eating fish and forest-fish interactions." In Review.

Peer-reviewed publications (N=16 total, N=4 1st author)

Echeverri, A., Batista, N., Wolny, S., **Herrera-R, G.A.**, Andrade-Rivas, F., Bailey, A., Cárdenas-Navarrete, A., Dávila Arenas, A., Díaz Salazar, A., Hernández, K., Langhans, K., Mateus Aguilar, B., Levey, D., Neill, A., Nguyen, O., Suarez-Castro, A., Zapata, F., and Ocampo-Peñuela, N. (In press). "Toward Sustainable Biocultural Ecotourism: An Integrated Spatial Analysis of Cultural and Biodiversity Richness in Colombia." In: *People and Nature*.

Hernandez, K. V., Andrade-Rivas, F., Batista, N., Cárdenas-Navarrete, A., Dávila Arenas, A., **Herrera-R, G.A.**, Langhans, K. E., Levey, D., Neill, A., Nguyen, O., Norzin, T., Ocampo-Peñuela, N., Sánchez Lopez, S., Wolny, S., Zapata, F., and Echeverri, A. (In press). "Disparity in Publicized National and International Vulnerability Status for Colombian Artisan Craft Plant Species." In: *Ecosystem and People*.

Shen, M. and al., et (In press). "FreshLanDiv: A global database of freshwater biodiversity across different land uses." In: Global Ecology and Biogeography.

Couto, T. B. A., Jenkins, C. N., Beveridge, C. F., Heilpern, S. A., **Herrera-R, G.A.**, Piland, N. C., Leal, C. G., Zuanon, J., Doria, C. R. C., Montoya, M., Varese, M., Correa, S. B., Goulding, M., and Anderson, E. P. (2024). "Translating science into actions to conserve Amazonian freshwaters." In: *Conservation Science and Practice*, e13241. DOI: https://doi.org/10.1111/csp2.13241.

Herrera-R, G.A., Heilpern, S., Couto, T. B. A., Victoria-Lacy, L., Duponchelle, F., Correa, S. B., Farah-Pérez, A., López-Casas, S., Cañas-Alva, C. M., Doria, C. R. C., and Anderson, E. P. (2024). "A synthesis of the diversity of freshwater fish migrations in the Amazon basin." In: Fish and Fisheries 25.1, pp. 114–133. DOI: https://doi.org/10.1111/faf.12795.

Heilpern, S., **Herrera-R, G.A.**, Fiorella, K., Moya, L., Flecker, A., and McIntyre, P. B. (2023). "Functional diversity sustains multiple dietary nutrients supplied by freshwater fisheries." In: *Ecology Letters* 26.12, pp. 1887–1897. DOI: https://doi.org/10.1111/ele.14299.

Bogotá, Colombia

Miami, FL

- **Herrera-R, G.A.**, Tedesco, P., DoNascimiento, C., Jézéquel, C., and Giam, X. (2023). "Accessibility and appeal jointly bias the inventory of Neotropical freshwater fish fauna." In: *Biological Conservation* 284. DOI: https://doi.org/10.1016/j.biocon.2023.110186.
- Brosse, S., Charpin, N., Su, G., Toussaint, A., **Herrera-R, G.A.**, Tedesco, P. A., and Villéger, S. (2021). "FISHMORPH: A global database on morphological traits of freshwater fishes." In: *Global Ecology and Biogeography* 30.12, pp. 2330–2336. DOI: https://doi.org/10.1111/geb.13395.
- Duponchelle, F., Isaac, V. J., Rodrigues Da Costa Doria, C., Van Damme, P. A., **Herrera-R, G.A.**, Anderson, E. P., Cruz, R. E. A., Hauser, M., Hermann, T. W., Agudelo, E., et al. (2021). "Conservation of migratory fishes in the Amazon basin." In: *Aquatic Conservation: Marine and Freshwater Ecosystems* 31.5, pp. 1087–1105. DOI: https://doi.org/10.1002/aqc.3550.
- Gibson, N., Green, E., **Herrera-R, G.A.**, Love, S., Turner, S., Weatherton, M., Faidiga, A., Luo, A., Ngoh, M., Shershen, E., et al. (2021). "Toward an ecology of disasters: a primer for the pursuit of ecological research on disasters." In: *Ecology and Society* 26.4. DOI: https://doi.org/10.5751/ES-12707-260422.
- Herrera-R, G.A., Oberdorff, T., Anderson, E. P., Brosse, S., Carvajal-Vallejos, F. M., Frederico, R. G., Hidalgo, M., Jézéquel, C., Maldonado, M., Maldonado-Ocampo, J. A., et al. (2020). "The combined effects of climate change and river fragmentation on the distribution of Andean Amazon fishes." In: *Global Change Biology* 26.10, pp. 5509–5523. DOI: https://doi.org/10.1111/gcb.15285.
- Encalada, A. C., Flecker, A. S., Poff, N. L., Suárez, E., **Herrera-R, G.A.**, Ríos-Touma, B., Jumani, S., Larson, E. I., and Anderson, E. P. (2019). "A global perspective on tropical montane rivers." In: *Science* 365.6458, pp. 1124–1129. DOI: https://doi.org/10.1126/science.aax1682.
- Angarita, H., Wickel, A. J., Sieber, J., Chavarro, J., Maldonado-Ocampo, J. A., **Herrera-R, G.A.**, Delgado, J., and Purkey, D. (2018). "Basin-scale impacts of hydropower development on the Mompós Depression wetlands, Colombia." In: *Hydrology and Earth System Sciences* 22.5, p. 2839. DOI: https://doi.org/10.5194/hess-22-2839-2018.
- Urbano-Bonilla, A., Ballen, G. A., **Herrera-R, G.A.**, Zamudio, J., Herrera-Collazos, E. E., DoNascimiento, C., Prada-Pedreros, S., and Maldonado-Ocampo, J. A. (2018). "Fishes of the Cusiana River (Meta River basin, Colombia), with an identification key to its species." In: *ZooKeys* 733, p. 65. DOI: https://doi.org/10.3897/zookeys.733.20159.
- DoNascimiento, C., Herrera-Collazos, E. E., **Herrera-R, G.A.**, Ortega-Lara, A., Villa-Navarro, F. A., Oviedo, J. S. U., and Maldonado-Ocampo, J. A. (2017). "Checklist of the freshwater fishes of Colombia: a Darwin Core alternative to the updating problem." In: *ZooKeys* 708, p. 25. DOI: https://doi.org/10.3897/zookeys. 708.13897.
- Herrera-R, G.A., Murcia-Castillo, M. A., and Prada-Pedreros, S. (2016). "First record of Amatitlania nigrofasciata (Günther, 1867)(Cichliformes: Cichlidae) as introduced species in natural freshwaters of Colombia." In: *Check List* 12.4, p. 1932. DOI: https://doi.org/10.15560/12.4.1932.

Other publications

- Álvarez Hincapié, C.F., Maldonado-Ocampo, J., Sanjuan, T., Álvarez-Dávila, E., Ajiaco, R.E., Buitrago, L., González, M.A., **Herrera-R, G.A.**, Ortíz Gallego, R., Plata, C., Polanco, A., Rosselli, L., Uribe, U., Alterio, H., Barrero, E.Y., and Laverde-R, O. (2021). *Estado de la biodiversidad en Colombia*. Bogotá, D. C., Colombia, pp. 100–369.
- Angarita, H., Santos-Fleishman, A., Rogeliz, C., Campo, F., Narvaez-Campo, G., Delgado, J., Santos, T., Santos, A.C., **Herrera-R, G.A.**, and Jiménez-Segura, L.F. (2020). *Modificación del Hábitat para los Peces de la Cuenca del Río Magdalena*, p. 434.
- García-Alzate, C., Do Nascimento, C., Villa-Navarro, F.A., García-Melo, J.E., and **Herrera-R, G.A.** (2020). Diversidad de Peces de la Cuenca del Río Magdalena, Colombia, p. 434.
- Herrera-R, G.A., López-Casas, S., and Maldonado-Ocampo, J.A. (2018). Análisis de Vulnerabilidad de Especies de Peces por Pérdida de Área de Distribución Debido al Cambio Climático en la Macrocuenca Magdalena-Cauca, p. 434.

Student mentoring

Pablo Fernandez Cardona

Jan 2025-

Oundergraduate Student — Biology, Pontificia Universidad Javeriana Primary Advisor

Project: Composition and Structure of Fish Communities Between Irrigation Canals and Natural Streams in

Oil Palm Plantations in Cumaral, Meta

Keisha Hunsucker Jan-Dec 2023

Undergraduate Student — Ecology & Evolutionary Biology, University of Tennessee Secondary Advisor
Chancellor's Honors Program Project: Effect of Environmental Change on the Trait Composition of Fish
Communities in the Tennessee River Basin Over the Past 20 Years

Jacob Woodlief Jan-Dec 2022

Undergraduate Research Assistant — Ecology & Evolutionary Biology, University of Tennessee Supervisor

Emily Brock Jan-May 2022

INSTARS Program May 2019 & 202

Society for Freshwater Science

Mentor

Speed Mentoring

Dec 2022

NSF EMERGE Program — Society for Freshwater Science Mentor

Teaching experience

Graduate Teaching Assistant

Jan 2020 -

EEB 471 (2), BIOL 102 (1), 150 (1) and 159 (1)

The University of Tennessee

Undergraduate Teaching Assistant

Jan - July 2015

Vertebrate Zoology Course, <u>Professor:</u> Dr. Saúl Prada-Pedreros Preparation of lab classes, fieldwork planning and student evaluation

Pontifical Xavierian University

Tutor

Writing Center, Professor: Blanca González

Supervising writing process of students in diverse topics (Economy, Engineering, Law, ect.)

July 2014 - July 2015

Pontifical Xavierian University

Supervising writing process of students in diverse topics (Economy, Engineering, Law, ect.)

Undergraduate Teaching Assistant

July - Dec 2014

Invertebrate Zoology Course, <u>Professor:</u> Dr. Dimitri Forero Preparation of lab classes and student evaluation.

Pontifical Xavierian University

Coursework

- The University of Tennessee: CORE: Evolution [EEB 511. 3 CTS], CORE: Ecology [EEB 509. 3 CTS], Phylogenetic methods [EEB 587, 3 CTS], Advanced Topics: Meta-Analysis for Ecology and Evolution [EEB 681, 3 CTS], Advanced Mathematical Ecology I [EEB 681, 3 CTS].
- University of Toulouse III: Data analysis in ecology [AnEco, 3 ECTS], Temporal analysis for ecology [ATÉ, 3 ECTS], Detection and characterization of Ecological Patterns [DeCaPE, 3 ECTS], Modeling and In-Depth Numerical Analysis [MANA, 3 ECTS], Informatic tools for science [OtIS, 3 ECTS], Dynamical Systems in Ecology [SysDynE, 3 ECTS].

Developing essential grant and funding skills for conservation

2017

International Congress for Conservation Biology

Cartagena, Colombia

Applied statistics and graphics with R (Rwizard)

2015

Pontifical Xavierian University

Bogotá, Colombia

Fundamentals in species distribution modeling and analysis

Partners for the Conservation of the Colombian Amazon

Bogotá, Colombia

2014

Factors affecting aquatic communities in the Orinoco

Colombian Ichthyology Association

2013 Bogotá, Colombia

Skills

- Computer Programming: R (Proficient), Scilab/Matlab, Python (Basics), LATEX(Proficient).
- o GIS Software: ArcGIS (Proficient), QGIS (Proficient), GRASS (Proficient).
- **Statistics:** Multivariate analyses, Species Distribution Models, Machine Learning, Mixed Models, Hypothesis testing.
- o Languages: English (TOEFL IBT: 102), Spanish (Native), French (Fluent).
- Diving: SCUBA Open Water Diver.
- Field work: Fishes and water quality sampling in tropical streams in Colombia (Bogotá river and Piedmont Orinoco) and Puerto Rico (El Yunke National Forest and Rio Piedras river)

Service and other appointments

- **2024 Graduate Student Representative:** Diversity Commmitte. The University of Tennessse. Department of Ecology and Evolutionary Biology.
- **2024** Member: Council of Underrepresented Voices. Society for Freshwater Science.
- **2023 Collaborator:** Harnessing AI for Strategic Hydropower Planning in the Magdalena Basin. Cornell University. PI: Alexander Flecker & Carla Gomes.
- **2022 2024. Collaborator:** Assessing biocultural values for sustainable tourism planning in Colombia. Natural Capital Project Stanford University / University of California Berkeley. Pl: Alejandra Echeverri.
- **2020 2022. Member:** *Science Group Citizen Science for the Amazon WCS.*
- **2020. Participant:** Working Group on Andes-to-Amazon Conservation Targets. Florida International University and WCS. Organizer: Elizabeth Anderson
- 2019 2020. Author: IPBES National Biodiversity and Ecosystem Services of Colombia.
- **2018 2019**. **Participant:** Living Andean Rivers Workshop. Florida International University and Universidad San Francisco de Quito. Organizer: Elizabeth Anderson

Peer-review

2020 - **Journal reviewer:** Revista de Ecologia Aplicada (1), Science of the Total Environment (2), Fisheries Research (1), Hydrobiologia (1), Ecology and Evolution (1), Biotropica (1).

2020 - Program reviewer: *NSF - EMERGE Fellowship (1).*

Invited presentations

- **2024** *Populations, Functional Groups, and Migrations in Freshwater Fishes.* Ichthyology [Class]. National University of Colombia. Online.
- **2023** A short introduction to meta-analyses in Ecology. Applied Community Ecology [Class]. West Virginnia University. November 8th. Online.
- **2023** Unmasking functional syndromes on tropical freshwater fishes under land-use and land-cover changes. Special talk.Freshwater Under 2023. Brisbane, Australia.
- **2023** Freshwater biodiversity responses to environmental change. Seminar. March 16. Biology and Environmental Studies Departmental Seminar. University of North Carolina. Asheville, North Carolina.

Conference presentations (Only 1st Author)

- **2024** Unmasking taxonomic and functional responses of tropical fish communities under land-use and land-cover changes. Oral presentation. Ecological Society of America (ESA) Meeting. Long Beach, CA
- **2023** Unmasking functional syndromes on tropical freshwater fishes under land-use and land-cover changes. Poster. December 2023. AGU Fall Meeting. San Francisco, CA.
- **2023** Building a pantropical database of freshwater fish communities: Building trust and partnership among underrepresented scholars. Oral presentation (Online). Ecological Society of America (ESA) Meeting. Portland, OR.
- **2022** The diversity of migratory behaviors in the Amazon basin: a literature synthesis. Oral presentation. July 10-14. 58th Annual Meeting of the Association for Tropical Biology and Conservation. Cartagena, Colombia.
- **2022** Functional traits regulate the temporal stability of freshwater fishes across organizational scales. Oral presentation. May 14-20. Joint Aquatic Science Meeting. Grand Rapids, Michigan.
- **2019** Evaluacion de riesgo de extincion de la ictiofauna de la macrocuenca Magdalena-Cauca en un contexto de cambio climatico. Oral presentation. July 17-19. XV Colombian Ichthyology Congress. Medellin, Colombia.
- **2019.** *Is freshwater migration a mechanism to avoid energetic limitation in Amazonian fishes?*. Oral presentation. May 19-23. Society for Freshwater Science. Salt Lake City, Utah.
- **2019.** Revealing fish endemism patterns in the Andean Orinoco region in Colombian. Poster. 5-9 August. IBS Humboldt-Meeting. Quito, Ecuador.
- **2018.** Freshwater fishes' vulnerability to climate change and fragmentation by dams in the Andean Amazon. Oral presentation. July 23-26. AQUATROP Congress. Quito, Ecuador.
- **2017.** Freshwater fishes' vulnerability to climate change and fragmentation by dams in the Andean Amazon. Oral presentation. August 14-20. XIV Colombian Ichthyology Congress. Cali, Colombia.
- **2016.** Fish endemism patterns in Colombian Andean Orinoco region from species distribution models: Implications for their conservation. Poster. May 21-16. Society for Freshwater Science Meeting 2016. Sacramento, California, United States.
- **2016.** Factors regulating the distribution and abundance of Sicydium (Gobiidae: Perciformes) in headwater streams within El Yunque National Forest, Puerto Rico. Oral presentation. May 21-16. Society for Freshwater Science Meeting 2016. Sacramento, California, United States.

Outreach

- 2020. Blog post. "Por los rios de la Amazonia". Ciencia Ciudadana para la Amazonia.
- **2018.** Infograph. "Peces de agua dulce: El conocimiento progresivo del patrimonio íctico de Colombia". Reporte Biodiversidad 2017.
- **2017.** Reportage. "Luchar a contracorriente para salvar a la guapucha". Revista Pesquisa, No. 35, Marzo-Mayo. 2016.

Research grants

| 0 | W. K. McClure Scholarship (\$5000) Center for Global Engagement - The University of Tennessee | 2024 |
|---|---|------|
| 0 | Breedlove, Dennis Award (\$1500) Department of Ecology and Evolutionary Biology and the Herbarium - The University of Tennessee | 2024 |
| 0 | Graduate Student Conservation Research Award (\$1000) Conservation and Environmental Issues Committee - Society for Freshwater Science | 2024 |
| 0 | Graduate Student Research Award (\$4164 Graduate School - The University of Tennessee | 2024 |

| Global Catalyst Student International Travel Award (\$850) Center for Global Engagement - The University of Tennessee | 2023 | | |
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| General Endowment Graduate Student Award (\$1000) Society for Freshwater Science | 2023 | | |
| Simpson Endowment Award (\$1000) Society of Freshwater Science | 2022 | | |
| Graduate Research Award (\$900 & \$1800) Department of Ecology and Evolutionary Biology - The University of Tennessee | 2022, 2021 | | |
| Ph.D. Fellowship for doctorates abroad (\sim \$66433) Ministry of Science, Technology and Innovation from Colombia | 2020-2024 | | |
| Honors and awards | | | |
| Best Progress Towards Dissertation Department of Ecology & Evolutionary Biology (EEB) - The University of Tennessee | 2024 | | |
| Open Science Section Presentation Award (\$300 & \$500) Open Science Section - Ecological Society of America (ESA) | 2024, 2023 | | |
| Travel Award (\$800 & \$540) Of Graduate Student Senate - The University of Tennessee | 2023, 2022 | | |
| Oscar Roy Ashley Graduate Fellowship (\$4000) Oscar Roy Ashley Graduate Fellowship (\$4000) Graduate School - The University of Tennessee | 2023-24 | | |
| NSF EMERGE Fellowship Society for Freshwater Science | 2023-24, 2021-22 | | |
| Best Graduate Student Oral Presentation - Applied Sciences category (\$400) Society of Freshwater Science - Joint Aquatic Science Meeting (JASM), Grand Rapids - N | 2022 <i>dichigan</i> | | |
| Beagle Memorial Fund Award (\$500) Department of Ecology and Evolutionary Biology - The University of Tennessee | 2021 | | |
| Beca TNC: Investigación en sistemas andinos de agua dulce (\$500) **Humboldt Meeting 2019** | 2019 | | |
| Travel Award (\$350) Output WaterHackWeek Workshop 2019 - University of Washington | 2019 | | |
| Training Award - Pre-congress course Freshwater Working Group - Society for Conservation Biology Meeting 2017 | 2017 | | |
| Travel Award (\$600) **INSTARS Mentoring Program – Society for Freshwater Science Meeting 2016 | 2016 | | |
| Research Experience for Undergraduates (REU) (\$5500) **University of Puerto Rico - Program Tropical Ecology & Evolution** | 2015 | | |
| Sponsored Membership Online International Biogeography Society | 2016 | | |
| Andres Bello Award Ministry of Education from Colombia | 2010 | | |
| Exceptional-grade at the national level in the ICFES* Biology section Best ICFES* score Colegio Gimnasio Mompiano | 2010 | | |
| *Standarized Test for high school students as requirement for admission to universities in | Colombia. | | |