

EDUCATION

2021-present Ph.D. Biology. St. John's University. NY, USA. Advisor: Dr. Juan C. Santos.
2011-2016 B.S. Biology (Honors). University of Quindío. (Armenia, Colombia).

COMPLEMENTARY EDUCATION

2019 XI International Metabarcoding School. Humboldt Institute. Villa de Leyva, Colombia.
2015 IV Latin American School of Evolutionary Biology. Universidad del Quindío. Armenia, Quindío.

PUBLICATIONS

- 2023** Toro-Gomez MP, **Carvajal-Castro JD**, Casas-Cardona S, Vargas-Salinas F. Experimental evidence suggests that tadpole transport on the dorsum could contribute to shape the evolution of warning signal coloration in poison-dart frogs. **Evolutionary Ecology** 37(2), 267-289. DOI: 10.1007/s10682-022-10219-z.
- 2021** **Carvajal-Castro JD**, Ospina-L AM, Guerrero-Peláez S, Toro-López Y, Cabrera-Casas L, Pulido-GA, García-Merchán VH, Vargas-Salinas F. Urbanization is associated to loss of phylogenetic diversity of birds in a medium size city on the Andes of Colombia, South America. **Studies on Neotropical Fauna and Environment**. DOI: 10.1080/01650521.2021.1974709.
- 2021** **Carvajal-Castro JD**, Casas-Cardona S, Rojas B, Vargas-Salinas F, Santos JC. Aposematism facilitates the diversification of parental care strategies in poison frogs. **Scientific Report** 1: 19047. DOI: 10.1038/s41598-021-97206-6.
- 2021** Mosquera-Guerra F, Trujillo F, Oliveira-da-Costa M, Marmontel M, Van Damme PA, Franco N, Córdova L, Campbell E, Alfaro-Shigueto J, Mena JL, Mangel JC, Usma JS, **Carvajal-Castro JD**, Mantilla-Meluk H, Armenteras-Pascual D. Home range and movements of Amazon river dolphins *Inia geoffrensis* in the Amazon and Orinoco river basins. **Endangered Species Research** 45: 269-282. DOI: 10.3354/esr01133.
- 2021** Fouilloux CA, Serrano Rojas SJ, **Carvajal-Castro JD**, Valkonen JK, Gaucher P, Fischer MT, Pašukonis A, Rojas B. 2021. Pool choice in a vertical landscape: Tadpole-rearing site flexibility in phytotelm-breeding frogs. **Ecology and evolution** 11(13): 9021-9038. DOI: 10.1002/ece3.7741.
- 2021** Echeverry-Cárdenas W, López-Castañeda C, **Carvajal-Castro JD**, Aguirre-Obando OA. Potential geographic distribution of the Tiger Mosquito *Aedes albopictus* (Skuse, 1894) (Diptera: Culicidae) in current and future conditions for Colombia. **PLoS Neglected Tropical Diseases** 15(5): e0008212. DOI: 10.1371/journal.pntd.0008212.
- 2021** Jiménez-Vargas GM, Atehortua-Vallejo MA, Arcila-Pérez LF, **Carvajal-Castro JD**, Vargas-Salinas F. 2021. Natural abiotic noise promotes segregation on functional diversity in neotropical anuran assemblages? **Biological Journal of the Linnean Society**. 132, 847–860 DOI: 10.1093/biolinnean/blaa232.
- 2020** **Carvajal-Castro JD**, López-Aguirre Y, Ospina-L A, Santos JC, Rojas B, Vargas-Salinas. 2020. Much more than a clasp: Evolutionary patterns of amplexus diversity in anurans. **Biological Journal of the Linnean Society** 129(3): 652-663. DOI: 10.1093/biolinnean/blaa009.
- 2020** Acosta *et al.* 2020. Boyacá Bio: Resultados, Retos y Oportunidades. *Instituto de Investigaciones de Recursos Biológicos Alexander von Humboldt*. Bogotá, Colombia.

- 2019 Carvajal-Castro JD**, Ospina-L AM, Guerrero-Peláez S, Toro-López Y, Cabrera-Casas L, Pulido-G A, García-Merchán VH, Vargas-Salinas F. 2019. Birds vs Bricks: Patterns of species diversity in response to urbanization in a neotropical andean city. **PloS ONE** 14(6): e0218775. DOI: 10.1371/journal.pone.021877.
- 2019 Mosquera-Guerra F**, Trujillo F, Parks D , Oliveira-da-Costa M, Van Damme P, Echeverría A, Franco N , **Carvajal-Castro JD**, Mantilla-Meluk H, Marmontel M, Armenteras- Pascual D. 2019. Presence of mercury in populations of river dolphins of the Amazon and Orinoco basins. **EcoHealth** 16(4): 743-758. DOI: 10.1007/s10393-019-01451-1
- 2019 Torres M. et al.** 2019. Santander Bio: Resultados, Retos y Oportunidades. *Instituto de Investigaciones de Recursos Biológicos Alexander von Humboldt*. Bogotá, Colombia.
- 2018 Mosquera-Guerra F**, Trujillo F, Parra-Sandoval CA, **Carvajal-Castro JD**, Mantilla-Meluk H. Aspectos poblacionales y biogeográficos de la tonina o delfín de río, *Inia geoffrensis humboldtiana* Pilleri & Gühr, 1978 (Cetartiodactyla, Iniidae) en los ríos Guayabero y Losada, sierra de La Macarena, Meta, Colombia. In: Biodiversidad de la sierra de La Macarena, Meta, Colombia. **Parte I. Ríos Guayabero medio, bajo Losada y bajo Duda**. Lasso, C. A., M. A. Morales-Betancourt & I. D. Escobar-Martínez (Editors). Instituto Alexander von Humboldt. Bogotá, Colombia.
- 2018 Trujillo F**, Mosquera-Guerra F, Díaz-Pulido A, **Carvajal-Castro JD**, Mantilla-Meluk H. 2018. **Mammals of Colombian Guiana. In: Fauna Silvestre del Escudo Guayanés (Colombia- Venezuela)**. Lasso, C. A. & J. C. Señaris (Editors). Instituto Alexander von Humboldt. Bogotá, Colombia.
- 2017 García-Merchán VH**, **Carvajal-Castro JD**, González-Rivillas N, Sosa C. Persistencia de especies en un contexto de cambio climático: Palma de cera del Quindío (*Ceroxylon quindiuense*) como modelo de estudio. Editorial Universidad del Quindío. ISBN 978-958-8593-81-4.
- 2016 Carvajal-Castro JD**, Vargas-Salinas F. Stream noise, habitat filtering, and the phenotypic and phylogenetic structure of Neotropical anuran assemblages. **Evolutionary Ecology** 30(3): 451–469. DOI: 10.1007/s10682-016-9817-8

MANUSCRIPTS IN REVIEW

Carvajal-Castro JD, Yagudayeva G, Ortiz R, Santos JC. Environmental factors influencing the evolution of adult hemoglobins in land reptiles.

Ortiz R, Dabydeen LC, Kosinski C, Gera P, **Carvajal-Castro JD**, Akilov V, Howell HJ, Powell E, Santos JC. Skin Transcriptomics of Invasive Coqui Frogs: Stress Responses, Parasite Signatures, and Antimicrobial Peptides.

RESEARCH EXPERIENCE

2018-20 Research assistant. Instituto Alexander von Humboldt. Genetics Conservation Lab. Principal Investigator Mailyn Gonzalez Ph.D.

Activities: Collecting Environmental DNA to apply Metabarcoding approach. Spatial ecological analysis (Phylogenetic and functional diversity). Field Work: Colombian Andes; Magdalena Valley, Amazonia Region.

2018 Associate Researcher. Universidad del Quindío. Project: Flow genetic and global genetic diversity of mosquito *Aedes albopictus* and possible spatial distribution in Colombia. Principal Investigator: Dr. Oscar Alexander Aguirre-Obando (Assistant professor)

Activities: Collecting and curating the occurrence data of the species. Modelling the species distribution and helping with the genetic analysis.

2018-19 Associate Researcher. Whitley Fund for Nature; Segré Foundation and Fundación Omacha. Project: Strengthening Local and Regional Conservation Initiatives for the Protection of the Rivers Dolphins in South America. Investigator:

Dr. Fernando Trujillo (Fundación Omacha director) and Federico Mosquera-Guerra (coordinator of the South American River Dolphin Conservation Program)

Activities: Debug information on the occurrence of different dolphin species, Modelling the species distribution and help with ecological impact analysis due to hydroelectric power plants

2017-18 Research assistant. Universidad del Quindío. Project: Evolutionary divergence and convergence disassociation in the temporal and spectral properties of the mating calls of the (Boettger's Colombian Treefrog) *Dendropsophus columbianus* Principal Investigator: Dr. Fernando Vargas-Salinas (Assistant Professor, Colección de Herpetología de la Universidad del Quindío)

Activities: Collecting acoustic, life history and morphological measurement and tissue for 10 populations of endemic species *Dendropsophus columbianus*. Field work in Risaralda, Quindío and Valle del Cauca (Colombia). Statistical analyses of acoustic, morphological and genetics data.

FIELDWORK EXPERIENCE

COLOMBIA: Boyaca region (2022); Caribe region (2021); Central Andean Highlands and Paramo (2018-2020); Putumayo, Colombian Amazon (2019); Yotoco Private Reserve (Biogeographic Chocó, 2014-2017). San Cipriano, Valle del Cauca (Biogeographic Chocó Forest, 2014-2017); San Pedro, Valle del Cauca (Biogeographic Chocó Forest, 2017); Quibdó, Chocó (Biogeographic Chocó Forest, 2016). **FRENCH GUIANA:** Les Nouragues Research Station (2019). **United States:** Puerto Rico (2021).

TEACHING EXPERIENCE

- 2024** Teaching Assistant. Spring and Fall. Introduction to Biology, Ecology and Botany. St. John's University
2023 Teaching Assistant. Spring and Fall. Introduction to Biology, Ecology and Botany. St. John's University
2021-22 Teaching Assistant. Spring and Fall. Introduction to Biology. St. John's University
2016 Genetics (laboratory), Graduate instructor. Universidad del Quindío.
2016 Ecology II (laboratory), Graduate instructor. Universidad del Quindío.
2015 Genetics, Undergraduate Teaching Assistant. Universidad del Quindío.
2015 Ecology I & II, Undergraduate Teaching Assistant. Universidad del Quindío.
2014 Genetics, Undergraduate Teaching Assistant. Universidad del Quindío.

MENTORING

- 2024** Justin Veerasami. St. John's University (New York City)
2023 Sarah E. Meller. St. John's University (New York City)
2023 Zada O'Connell. St. John's University (New York City)
2023 Richard A. Correa-Lampasona, St. John's University (New York City)
2018 Eliana Tabares BS Biology. Universidad del Quindío (Armenia – Colombia) Principal Advisor: Víctor Hugo García-Merchán Ph.D.
2018 Emmanuel Echeverry Cárdenas BS Biology. Universidad del Quindío (Armenia – Colombia) Principal Advisor: Oscar Alexander Aguirre-Obando Ph.D.

HONORS AND AWARDS

- 2022** Best Oral presentation (Co-author). III Congreso Colombiano de Herpetología, Cali, Colombia.
2022 The Haldar Award for Excellence in Research. Department of Biological Sciences. St. John's University. New York City.
2016 Best Oral presentation (3th place). I Congreso Colombiano de Herpetología. Medellín, Colombia.
2015 Best Oral presentation (2th place). V Simposio Colombiano de Biología Evolutiva. Universidad del Quindío. Armenia, Colombia.

GRANTS

- 2019** Ecology and evolution of pool choice strategies in phytotelm-breeding frogs. Nouragues Travel Grants Programs. **PI:** Bibiana Rojas Ph.D. **Co-PI:** Andrius Pašukonis Ph.D. Field Work: Early in 2019 in French Guiana. (Approx. € 10000)

PEER-REVIEW

Journal articles: Peer review of 11 papers for 10 journals such as Current Zoology, Ecosphere; Biological Journal of The Linnean Society; BMC Ecology and Evolution; Journal of Urban Ecology; Ecological Monographs, Ecological Indicators, Biota Colombiana, Behavioral Ecology and Sociobiology and Evolutionary Ecology, Herpetological Review.

MEMBERSHIP IN SOCIETIES AND RESEARCH GROUPS

Sociedad Colombiana de Zoología (ACZ)
Asociación Colombiana de Herpetología (ACH)
Sociedad Colombiana de Mastozoología (SCMas)

OUTREACH

- 2024 Mentor in Society for the Study of Amphibians and Reptiles (SSAR) mentorship program.
2024 Editor in press release section. The American Naturalis
2017 I helped the high school students with state exam preparation in the Gimnasio Contemporaneo (Armenia-Colombia)

PRESENTATIONS AT SCIENTIFIC MEETINGS

- 2024 Unraveling the Evolution of Thermosensitive Ion Channels in Poison Frogs. **Carvajal-Castro JD**, Wang Z, Yu Y, Juan C. Santos. EMPSEB29. Puchberg am Schneeberg, Austria.
- 2022 Hemoglobin genes: evolution across reptiles follows environmental variation tied to oxygen availability. **Carvajal-Castro JD**, Ortiz R, Yagudayeva G, Santos JC. (Oral presentation). Evolution. Cleveland, US.
- 2022 Life History of Reptiles in Hemoglobin-Oxygen Affinity. Yagudayeva G, Carvajal-Castro JD, Ortiz R, Santos JC. (Oral presentation). Evolution. Cleveland, US.
- 2018 Evolution of amplexus in Anurans. **Carvajal-Castro JD**, López-Aguirre Y, Ospina-L AM, Rojas B, Vargas-Salinas F. (Oral Presentation). V Congreso Colombiano de Zoología. Bogotá, Colombia.
- 2018 Diversidad de insectos revelada por metabarcoding de suelos en un gradiente altitudinal en el SFF-Iguaque. **Carvajal-Castro JD**, Arenas-Castro H, Tenorio E, Tovar E, Pulido-Santacruz P, González M. (Oral Presentation). V Congreso Colombiano de Zoología. Bogotá, Colombia.
- 2017 Análisis comparativo del cuidado parental, transporte de renacuajos y aposematismo en ranas venenosas (Dendrobatidae). **Carvajal-Castro JD**, Casas-Cardona S, Vargas-Salinas F, Santos JC. (Oral presentation). XI Congreso Latinoamericano de Herpetología. Quito, Ecuador.
- 2016 ¿Cuántos renacuajos en la espalda? Evidencia correlativa sugiere una relación entre cuidado parental y despliegue de señales aposemáticas en ranas venenosas. **Carvajal-Castro JD**, Casas-Cardona S, Vargas-Salinas F. (Oral Presentation). I Congreso Colombiano de Herpetología. Medellín, Colombia.
- 2015 Ruido de quebradas, filtro de hábitat y estructura filogenética de ensamblaje de anuros Neotropicales. **Carvajal-Castro JD**, Vargas-Salinas F. (Oral Presentation). V Simposio Colombiano de Biología Evolutiva. Universidad del Quindío. Armenia, Colombia

- 2014 Secuenciación masiva del genoma de la guagua loba (*Dinomys branickii*). **Carvajal-Castro JD**, Palero F, Saavedra C, García-Merchán VH. (Oral Presentation). IX Congreso Latinoamericano de Estudiantes de Ciencias Biológicas. Armenia, Colombia
- 2014 Diseño de Marcadores microsátélites en *Dinomys branickii*. **Carvajal-Castro JD**, López-Florez DA, Palero F, Saavedra C, García-Merchán VH. (Poster Presentation). IV Congreso Colombiano de Zoología- II Simposio Colombiano de pequeños mamíferos no voladores. Cartagena, Colombia
- 2014 Variabilidad genética del mosquito tigre *Aedes albopictus* (Diptera: Culicidae) basados en secuencias parciales del gen mitocondrial Citocromo Oxidasa I (COI). López-Florez DA, Orozco JS, **Carvajal-Castro JD**, García-Merchán VH. (Poster Presentation) IV Congreso Colombiano de Zoología- Simposio de Dipterología

ACADEMIC REFERENCES

Juan C. Santos Ph.D
Assistant Professor
St. John's University. NY, USA.
santosj@stjohns.edu

Fernando Vargas-Salinas Ph.D
Assistant Professor
Universidad del Quindío, Colombia
Curador de la Colección de Herpetología de la Universidad del Quindío (Herpetos-UQ)
fvargas@uniquindio.edu.co

Bibiana Rojas Ph.D
Department of Interdisciplinary Life Sciences
Konrad Lorenz Institute of Ethology
University of Veterinary Medicine
bibiana.Rojas@vetmeduni.ac.at