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Curriculum Vitae (Updated September 2023)

JORGE DAVID CARBALLO MORALES

Master's student in Biology
Department of Biological Science, Towson University
Towson, MD 21252

EDUCATION

Towson University (Maryland, US.) **Present**

- Master's degree in Biology (2 years program)
  - Research area: Organismal Biology and Ecology (Thesis track).
  - Research topic: Influence of ecological traits on bat's evolution.
  - Supervisor: Dr. Daniel S. Caetano.

Universidad Nacional de Costa Rica (Heredia, Costa Rica.) **2022**

- Post-bachelor's (Licentiate) degree in Biology with a specialization in Natural Resource Management (2 years program; GPA 9.2/10).
  - Thesis title: "Amplitud de hábitat y su relación con la masa corporal, gremio trófico y riesgo de extinción en murciélagos filostómidos (Chiroptera: Phyllostomidae) de distribución continental." [Link]
  - Supervisors: Dr. Federico Villalobos Brenes, Dr. Romeo Saldaña Vázquez, and Dr. Leonel Herrera Alsina.
  - Honors received: *summa cum laude.*

Universidad Nacional de Costa Rica (Heredia, Costa Rica.) **2020**

- Bachelor's degree in Biology with a specialization in Tropical biology (4 years program; GPA 8.4/10).

PUBLICATIONS (*corresponding author)

Scientific articles

Published articles.

Carballo-Morales, J. D.*, Saldaña-Vázquez, R. A., Villalobos, F., Herrera-Alsina, L. (2023) Thermal niche breadth in *Sturnira* bats and their relationship with species diversification. *Journal of Thermal Biology*, 117, 103697.

Carballo-Morales, J. D.*, Delgado-Montes, C., Auccacusi-Choque, L. V., Reyes-Ortiz, M., Aisenberg, A. (2022) Niche partitioning and intraspecific shared webs in two species of *Modisimus* Simon, 1893 (Pholcidae, Araneae). *Journal of Arachnology*. 10.1636/JoA-S-21-020

Cabrera-Campos, I., **Carballo-Morales, J. D.**, Saldaña-Vázquez, R. A., Villalobos, F., Ayala-Berdon, J.* (2021). Body mass explains digestive traits in small vespertilionid bats. *Journal of Comparative Physiology B.* 10.1007/s00360-021-01348-y

Carballo-Morales, J. D., Saldaña-Vázquez, R. A.*, & Villalobos, F. (2021). Trophic guild and forest type explain phyllostomid bat abundance variation from human habitat disturbance. *Global Ecology and Conservation.* e01425

Under review or in preparation articles.

Medina-Bello, K. I.*, **Carballo-Morales, J. D.**, Saldaña-Vázquez. R. A., Villalobos, F., Ayala-Berdon, J. (in prep.) Thermal energetics of bats of the family Vespertilionidae: an evolutionary approach.

Carballo-Morales, J. D.*, Villalobos, F., Saldaña-Vázquez, R. A, Herrera-Alsina, L. (in prep.) Habitat breadth and its relation to functional traits and extinction risk in phyllostomid bats.

Book chapter

Saldaña-Vázquez, R.A.*, **Carballo-Morales, J. D.**, Hernández-Montero, J. R., Ríos-Chelén, A. A., Vázquez-Domínguez. G., Aguilar-Cucurachi, S., Avila-Flores, R., Mella-Mendez, I., Sandoval-Ruiz, C. A., Silva-Rivera. E., Schondube, J. E., Spaan, D. (in review) Bats in tropical cities: a view since the ecology *in*, *of* and *for* cities. In: Angeoletto, F., Tryjanowski. P., Fellowes. M. (eds) *Ecology of Tropical Cities: Natural and Social Sciences Applied to the Conservation of Urban Biodiversity.* Springer.

TEACHING EXPERIENCE

Towson University, US – Principles of Biology (Laboratory) - Teacher Assistant **2023**

Semester course for students of non-biology major (Fall 2023)

- Introduce basic concepts of biology and the scientific method.

Organization for Tropical Studies, Costa Rica - Tropical Biology: an ecological approach - Teacher Assistant **2022-2023**

An annual five-week field course (June and July) taught in English at the Tropical Studies Organization biological stations in Costa Rica, attended primarily by graduate students from US universities.

- Actively participate in the organization of the course's activities; and provide students with information, material, and the necessary equipment to support their projects along the course.

Itarär Ecological Park and IPICIM school, Costa Rica - Recycling and organic waste management - Instructor **2022**

A 3-day workshop taught in Spanish for elementary students (from 6 to 12 years old).

- Promote ecologically responsible practices in kids.

Universidad Nacional de Costa Rica, Costa Rica - Phylogenetic comparative methods - Instructor **2021**

In collaboration with: Dr. Federico Villalobos Brenes, Dr. Romeo Saldaña Vázquez, and Dr. Leonel Herrera Alsina. A 14-hour virtual workshop taught in Spanish to national and international students.

- Teach about PGLS models, model selection with Akaike's information criterion, and reconstruction of ancestral states using R; and instructed on visualizing phylogenetic and spatial data with R.

Universidad Iberoamericana Puebla, Mexico - Scientific literature synthesis - Instructor **2021**

In collaboration with: Dr. Romeo Saldaña Vázquez, and Dr. Christian Rodríguez Enríquez, C. L. A 24-hour virtual workshop taught in Spanish to students from Mexican universities.

- Teach about systematic literature search to perform literature review and mapping, as well as bibliometric analysis; and instructed on visualizing phylogenetic data with R.

Universidad Latina, Costa Rica - Animal behavior with BORIS - Instructor **2019**

In collaboration with M.Sc. Carolina Esquivel. A 4-hour workshop taught in Spanish to Universidad Latina's students, Costa Rica.

- Teach animal behavior research methods; and data collection using videos and BORIS software.

RESEARCH EXPERIENCE

Independent projects

Post-bachelor research (thesis project) - Habitat niche breadth in phyllostomid bats. **2020-2021**

- Responsible for the project design, data collection, and statistical analysis: macroecological, multivariable, and phylogenetic comparative methods.

Undergraduate research - Meta-analysis of the response of neotropical bats to habitat disturbance. **2018-2020**

- Responsible for the project design, literature search and review, and statistical analysis.

Research assistance and work experience

Field research assistant - Interspecific interaction in damselflies (Odonata). **2022**

A project of Dr. Greg Grether from the University of California, Los Angeles; in Costa Rica for 6 weeks.

- Capture and mark individuals and collect behavior data.

Field research assistant - Social behavior of *Thyroptera tricolor* (Chiroptera: Thyropteridae). **2020**

A project of master 's student, Silvia Chaves-Ramirez from Universidad de Costa Rica, for 2 weeks.

- Capture and tag bats in the field.

Research collaborator - Several collaborations with national and international researchers. **2019-*present***

Collaboration with researchers mainly from Mexico, but also from Uruguay and other South American countries, mainly using bats as biological models, and focused on their ecology and physiology, with a macroecological approach.

- Collaborate with statistical analysis and data visualization, spatial data analysis, design of the project, and writing, with the result of two papers published and three manuscripts in preparation.
- Results: Saldaña-Vázquez et al. (in review; book chapter), Medina-Bello et al. (in prep.), Cabrera-Campos et al. (2021), Carballo-Morales et al. (2022), and Carballo-Morales et al. (2023). See publications.

Student research assistant - Laboratorio de Biología Tropical, Universidad Nacional de Costa Rica. **2018-2019**

Supervised by M. Sc. Carolina Esquivel.

- Responsible for a student's group of Animal Behavior.

Research internship – Universidad Nacional Autónoma de México, Universidad Michoacana de San Nicolas de Hidalgo, and Universidad Autónoma de Tlaxcala, México. **2018**

Supervised by Dr. Romeo Saldana-Vázquez.

- Placement of camera traps in urban parks to record the activity of mammals and assist master and doctoral students in their projects about the effect of artificial light on bats and the thermal tolerance of bats in highlands.

Student research assistant - Laboratorio de Sistemática, Genética y Evolución, Universidad Nacional de Costa Rica. **2016–2019**

Supervised by Dr. Federico Villalobos Brenes

- Perform a phylogenetic analysis for neotropical bats and collaborate in research about bats ecology with national and international researchers.

CONFERENCES (*speaker)

VIII Congreso Mexicano de Ecología - Oral presentation **2022**
Interacciones biológicas de murciélagos en ciudades tropicales: conocimiento actual y perspectivas futuras. Saldaña-Vázquez, R. A.*, **Carballo-Morales, J. D.**, Hernández-Montero, J. R., Ríos-Chelén, A. A., Vázquez-Domínguez. G., Aguilar-Cucurachi, S., Avila-Flores, R., Mella-Mendez, I., Sandoval-Ruiz, C. A., Silva-Rivera. E., Schondube, J. E., Spaan, D., Pellón, J. J., Angeoletto, F.

V Simposio de Biología Tropical, Universidad Nacional de Costa Rica - Oral presentation **2021**
Amplitud de hábitat en murciélagos filostómidos (Chiroptera: Phyllostomidae): relevancia ecológica e implicaciones en conservación. **Carballo-Morales, J.D.***, Villalobos, F., Saldaña Vázquez, R., & Herrera-Alsina, L.

IV Simposio de Biología Tropical, Universidad Nacional de Costa Rica - Oral presentation **2020**
Dimensiones de telas y captura de presa en dos especies del género *Modisimus* Simon, 1893 (Pholcidae, Araneae). **Carballo-Morales, J. D.***, Delgado-Montes, C., Auccacusi-Choque. L. V., M. Reyes-Ortiz, M., & Aisenberg, A.

VII Congreso Mexicano de Ecología - Oral presentation **2019**
El gremio trófico y tipo de bosque explican la abundancia de murciélagos filostómidos en hábitats perturbados por acción humana. **Carballo-Morales, J. D.***, Saldaña-Vázquez, R., & Villalobos, F.

SCHOLARSHIPS AND FUNDING

Partial economic exemption ($1,500) by the Organization for Tropical Studies to attend a course. **2021**
Partial economic exemption ($1,000) by the Organization for Tropical Studies to attend a course. **2019**
Travel grant ($950) by Vicerrectoría de Vida Estudiantil, Universidad Nacional de Costa Rica, to attend a conference in Mexico. **2019**
Luis Felipe González Flores [Renewal] socioeconomic scholarship (~$100/month) by Universidad Nacional de Costa Rica. **2018–2019**
Travel grant ($1,650) by Vicerrectoría de Vida Estudiantil, Universidad Nacional de Costa Rica, to attend a research internship in Mexico. **2018**
Financial assistance ($200) by Asociación de Estudiantes de Ciencias Biológicas, Universidad Nacional de Costa Rica, to attend a research internship in Mexico. **2018**
Luis Felipe González Flores socioeconomic scholarship (~$100/month) by Universidad Nacional de Costa Rica. **2014–2017**

ADDITIONAL EDUCATION

Quantitative and Computational Methods in Animal Behavior - Organization for Tropical Studies, Costa Rica [1-week field course; English] **2021**
Statistical analysis with R - Centro Nacional de Alta Tecnología, Costa Rica [20-hour classroom course; Spanish] **2019**
Tropical ecology and conservation - Organization for Tropical Studies, Costa Rica. [2-month field course; Spanish] **2019**
Scientific writing - Escuela de Ciencias Biológicas, Universidad Nacional de Costa Rica. [7-hour classroom course; Spanish] **2018**
Ecology and behavior of tropical vertebrates – Leibniz Universität Hannover (Germany), and Universidad Nacional de Costa Rica. [2-week field course; English] **2018**
Ecology and conservation of coastal ecosystems - California State University Channel Island (US) and Universidad Nacional de Costa Rica. [3-day field course; English] **2018**
Ecology and conservation of the tropical dry forest - Universidad Nacional de Costa Rica, Universidad de Costa Rica, and Universidad Autónoma de México. [2-week field course; Spanish] **2017**
Meta-analysis and phylogenetics - Escuela de Ciencias Biológicas, Universidad Nacional de Costa Rica. [35-hour classroom course; Spanish] **2017**

VOLUNTEERING AND RELATED EXPERIENCE

Volunteer - 59th Animal Behavior Society Conference. **2022**
Virtual assistance - 57th Animal Behavior Society Congress. **2020**
Laboratory assistant - Laboratorio de Biología Tropical, Universidad Nacional de Costa Rica. **2018-2019**
- Organize periodic talks on animal behavior with national researchers.

Member of *Asociación de Estudiantes de Ciencias Biológicas* (Universidad Nacional de Costa Rica**) -** Student organization. **2017-2018**
- Co-organize activities for first-year students in biological sciences and outreach activities in coastal communities.

Laboratory assistant - Laboratorio de Sistemática, Genética y Evolución, Universidad Nacional de Costa Rica. **2016**
- Managed a digital inventory of chemical reagents, glassware, and laboratory equipment.

RESEARCH SKILLS

- Project design.
- General fieldwork skills.
- Mist nets placement and handling bats and birds.
- Teamwork (national and international experience).
- Systematic literature review and research weaving.
- Statistical analysis, including phylogenetic comparative methods.
- Data management and visualization including spatial, environmental, and phylogenetic data.

SOFTWARE COMPETENCIES

- Microsoft Office (competent)
- R and Rstudio (competent)
- BORIS (competent)
- Quantum GIS (competent)
- Rmarkdown (intermediate)
- ImageJ (intermediate)
- Linux OS – Ubuntu (intermediate)
- Mesquite (beginner)
- GitHub (beginner)

LANGUAGE SKILLS

Spanish (native), **English*** (professional working/advanced), and **Portuguese** (limited working proficiency/beginner)

**English Test certificate [certs.duolingo.com/ad87dd333e1d5cd395cb9d7403a381bb]*