

Andrea PAZ VELEZ, PhD

Postdoctoral Researcher, ETH Zürich

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<http://andrepazv.github.io>

Education

- 2015-2021 **PhD Biology.** (GPA 4/4) *City University of New York; New York, USA.*
Thesis: Understanding and predicting the distribution of biodiversity in the Atlantic Forest
Advisor: Dr. Ana C. Carnaval
- 2015-2018 **M.Phil. Biology.** (GPA 4/4) *The Graduate Center, City University of New York, New York, USA.* Advisor: Dr. Ana C. Carnaval
- 2010-2012 **M.Sc. Biological Sciences** (GPA 4.7/5)- *Universidad de los Andes; Bogotá, Colombia.*
Thesis: Testing the role of ecology and life history in structuring genetic variation across a landscape: a study of Panamanian frog communities
Advisor: Dr. Andrew J. Crawford
- 2006-2010 **B.S. Biology** (GPA 4.3/5)- *Universidad de los Andes; Bogotá, Colombia.*
Thesis: Geographical and environmental determinants of population structure in the red-eyed tree frog, *Agalychnis callidryas*
Advisor: Dr. Andrew J. Crawford

Publications (Peer-reviewed, + equal contributions, *student co-author)

26. Suárez-Atilano M, Pacheco-Sierra G, Vázquez-Domínguez E, Pérez-Alquicira J, Kass JM, Paz A, Domínguez-Laso J. Genomic insights and conservation challenges for two hybridizing Mexican crocodile species: *Crocodylus acutus* and *C. moreletii*. Accepted *Animal Conservation*
25. Arias A, Barrientos LS, Pardo-Díaz C, Paz A, Crawford AJ, Salazar C. Species overestimation in the colour-polymorphic frog *Dendropsophus molitor* (Anura: Hylidae). In press. *Zoological Journal of the Linnean Society*
24. Kass JM, Pinilla-Buitrago G, Paz A et al. 2023. Interactive modeling of species niches and distributions using a redesigned and expanded Wallace 2.0. *Ecography*. 3:e06547
23. Galante PJ, Chang S, Paz A, Aiello-Lammens M, Gerstner BE, Johnson BA, Kass JM, Merow C, Noguera-Urbano E, Pinilla-Buitrago GE, Blair ME. 2023. changeRangeR: an R package for reproducible biodiversity change metrics from species distribution estimates *Conservation science and practice*. 5:e12863
22. Paz A, Silva TS, Carnaval AC. 2022. A framework for near-real time monitoring of diversity patterns based on indirect remote sensing, with an application in the Brazilian Atlantic rainforest. *PeerJ*. 10:e13534
21. Paz A, Hernandez LA*, Melo LSO*, Lyra M, Haddad C, Carnaval AC. 2022. Extreme environments filter functionally rich communities of Atlantic Forest treefrogs along altitudinal and latitudinal gradients. *Ecography*. e06138
20. Paz A, Brown J, Cordeiro CLO, Aguirre-Santoro J, Bacci LF, Kaehler M, Assis C, Caddah MK, Reginato M, Lyra ML, Amaro RC, Amaral F, d'Horta F, Freitas AVL, Goldenberg R, Lohmann L, Michelangeli FA, Miyaki C, Rodrigues MT, Silva-Brandão KL, Silva TS, Carnaval AC. 2021. Environmental correlates of taxonomic and phylogenetic diversity in the Atlantic Forest. *Journal of Biogeography*. 48(6):1377-1391
19. Brown J, Paz A, Reginato M, Amaro R; Assis C, Lyra M, Caddah M, Aguirre-Santoro J, d'Horta F, Raposo do Amaral F, Goldenberg R, Silva-Brandão K, Freitas A, Rodrigues M, Michelangeli F, Miyaki C; Carnaval A. 2020. Seeing the forest through many trees: multi-taxon patterns of phylogenetic diversity in the Atlantic Forest hotspot. *Diversity and Distributions*. 26(9) :1160-1176

18. Betancourth-C M, Palacios-R P, Mejía D, **Paz A**, Amézquita A. 2020. Genetic differentiation and overexploitation history of the critically endangered Lehmann Poison Frog: *Oophaga lehmanni*. *Conservation Genetics*. 21:453-465
17. Velez MA, Robalino J, Cardenas JC, **Paz A**, Pacay E. 2020. Is Collective Titling Enough to Protect Forests? Evidence from Afro-descendants Communities in the Colombian Pacific Region. *World Development*. 128:104837.
16. **Paz A**, Guarnizo CE. 2020. Environmental ranges estimated from species distribution models are not good predictors of lizards and frogs' physiological tolerances. *Evolutionary ecology*. 34(1):89-99
15. Prates I, **Paz A**, Brown JL, Carnaval AC. 2019. Effects of prey turnover on poison frog toxins: a landscape ecology approach to assess how biotic interactions affect species phenotypes. *Ecology and Evolution*. 9(24):14317-14329. Preprint: <https://www.biorxiv.org/content/10.1101/695171v3>
14. **Paz A**⁺, Gonzalez GA⁺*, Crawford AJ. 2019. Responses of frogs of different elevation ranges in the cordillera of Colombia to past climatic change. *11(1):e37055. Frontiers of biogeography*
13. **Paz A**, Spanos Z, Brown JL, Lyra M, Haddad C, Rodrigues M, Carnaval AC. 2018. Phylogeography of Atlantic Forest glassfrogs (*Vitreorana*): when geography, climate dynamics and rivers matter. *Heredity*. 122:545-557
12. Rueda X, **Paz A**, Gibbs-Plessl T, Leon R, Moyano B, Lambin ED. 2018. Smallholders at a cross-road: intensify or fall behind? Exploring alternative livelihood strategies in a globalized world. *Business Strategy and the Environment*, 27(2):215–229.
11. Gonzalez C, Leon C, **Paz A**, Lopez M, Molina G, Toro D, Ortiz M, Cordovez JM, Atencia MC, Aguilera G, Tovar C. 2018. Diversity patterns, *Leishmania* infection, and feeding preferences of Phlebotominae sand flies in rural human settlements in northern Colombia. *PloS one*. 13(1): e0190686
10. Gonzalez C, Molina G, Leon C, Salcedo N, Rondon S, **Paz A**, Atencia MC, Tovar C, Ortiz M. 2017. Assessing the eco-epidemiology of Malaria transmission in northern Colombia through vector and parasite species identification, spatial distribution and infection rate analyses. *Malaria Journal*. 16(1):431.
9. Flechas SV⁺, **Paz A**⁺, Crawford AJ, Sarmiento C, Acevedo A, Arboleda A, Bolívar-García W, Echeverry-Sandoval CL, Franco R, Mojica C, Muñoz A, Palacios-Rodríguez P, Posso-Terranova A, Quintero-Marín MP, Rueda-Solano LA, Castro-H F, Amézquita A. 2017. Current and predicted distribution of the pathogenic fungus *Batrachochytrium dendrobatidis* in Colombia, a hotspot of amphibian biodiversity. *Biotropica*. 49(5):685-694
8. Curiel Yuste J, Heres AM, Ojeda G, **Paz A**, Pizano C, García-Angulo D, Lasso E. 2017. Soil heterotrophic CO 2 emissions from tropical high-elevation ecosystems (Páramos) and their sensitivity to temperature and moisture fluctuations. *Soil Biology and Biochemistry*. 110:8-11
7. Mendoza AM, Torres MF, **Paz A**, Trujillo-Arias N, Lopez-Alvarez D, Sierra S, Forero F, Gonzalez MA. 2016. Cryptic diversity revealed by DNA barcoding in Colombian illegally traded bird species. *Molecular Ecology Resources*. 16(4):826-873
6. **Paz A**, Ibáñez R, Lips KR, Crawford AJ. 2015. Testing the role of ecology and life history in structuring genetic variation across a landscape: A trait-based phylogeographic approach. *Molecular Ecology*. 24(14): 3723-3737. [Cover]
5. Guarnizo CE, **Paz A**, Muñoz-Ortiz A, Flechas SV, Mendez-Narvaez J, Crawford AJ. 2015. DNA barcoding survey of anurans across the Eastern Cordillera of Colombia and the impact of the Andes on cryptic diversity. *PLOS one*. 10(5): e0127312.
4. González C, **Paz A**, Ferro C. 2014. Predicted altitudinal shifts and reduced spatial distribution of *Leishmania infantum* vector species under climate change scenarios in Colombia. *Acta Tropica*. 129:83-90
3. Portocarrero-Aya M, Corzo G, Días-Pulido A, Gonzalez MF, Longo M, Mesa L, **Paz A**, Ramírez W, Hernández-Manrique OL. 2014. Systematic conservation assessment for most of the Colombian territory as a strategy for effective biodiversity conservation. *Natural Resources*. 5:981-1006
2. **Paz A**, Crawford AJ. 2012. Molecular-based rapid inventories of sympatric diversity: A comparison of DNA

barcode clustering methods applied to geography-based vs. clade-based sampling of amphibians. *Journal of Biosciences*. 37(5):887-896. [Cover]

1. **Paz A**, Gonzalez M, Crawford AJ. 2011. Códigos de barras de la vida: Introducción y perspectiva. *Acta Biológica Colombiana*. 16(3):161-176.

Comments

Merow et al (including **Paz A**). The academic software developers' paradox: Incentivizing software maintenance and updates in Ecology and Evolution. *Nature Ecology & Evolution*. 7: 626-627

Bernal, X., et al. (254 signatories including **Paz A**). 2019. Empowering Latina Scientists. *Science* 363: 825-826.

Book Chapters

Paz A, Reginato M, Michelangeli FA, Goldenberg R, Caddah MK, Aguirre-Santoro J, Kaehler M, Lohmann LG, Carnaval AC. 2020. Predicting patterns of plant diversity and endemism in the tropics using remote sensing data: A study case from the Brazilian Atlantic rainforest. In: *Remote Sensing of Plant Biodiversity*. (eds Cavender-Bares J, Gamon J, P T), pp. 255–266 Springer, Cham.

Outreach

For the general public

Paz A. 2022. Why I communicate science to kids. Crowther Lab ETH Zürich Blog. <https://crowtherlab.com/why-i-communicate-science-to-kids/>

Flechas SV, **Paz A**, Crawford AJ. 2019. Motores de extinción: El caso de un hongo microscópico que ataca a los anfibios. In Moreno, L. A, Andrade, G. I. Y Gomez, M. F. (Eds.) Reporte de Estado y Tendencias de la Biodiversidad 2018. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

Barrientos L.S, **Paz A**, Lasso E. 2018. *Leptodactylus lithonaetes*. *Catálogo de Anfibios y Reptiles de Colombia*. 4 (1):30-36. (Peer reviewed)

Barrientos L.S, **Paz A**. 2017. *Diasporus anthrax*. *Catálogo de Anfibios y Reptiles de Colombia*.3(2):25-29.(Peer reviewed)

Gonzalez MA, **Paz A**.2013.iBOL Colombia advances: Barcoding life in a megadiverse country. *Barcode Bulletin*.4(2):6

For scientists and students

Johnson BA, Pinilla-Buitrago GE, **Paz A**, Kass JM, Meenan SI, Anderson RP. 2022. Wallace Ecological Modeling Application v2.0 Vignette. <https://wallaceecomod.github.io/wallace/articles/tutorial-v2.html> (with Spanish translation by **Paz A**)

Velez MA, Robalino J, Cardenas JC, **Paz A**, Pacay E. 2019. Is Collective Titling Enough to Protect Forests? Evidence from Afro-descendants Communities in the Colombian Pacific Region. *Serie Documentos Cede*. 3:2-51

Crawford A. J., **Paz A**. 2017. Anfibios. Pp23-24. In: Gonzalez M.A., Arenas-Castro H (Eds). Recolección de tejidos biológicos para análisis genéticos. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Bogotá, D. C., Colombia. 33 pp.

Paz A (2016) Lab 10: Fieldtrip to the American Museum of Natural History. In: *Laboratory Manual, Biology 22800, Ecology and Evolution*. (ed Anderson RP), p. 70 pp. Department of Biology, The City College of New York, New York.

Scholarships and fellowships (~US\$258,000)

March 2020 CUNY GC Mina Rees Dissertation Fellowship for final dissertation year. **US\$25,000**
(+tuition)

- August 2015 CUNY Science Scholarship. Stipend and tuition to pursue PhD studies at CUNY (5 years).~**US\$125,000** (+tuition)
- August 2015 Fulbright – Colciencias fellowship to pursue PhD studies in the USA. ~**US\$96,000**
- 2010-2012 Master studies Scholarship for Teaching and Research assistants. Facultad de Ciencias, Universidad de los Andes, Bogota, Colombia. Full tuition for 2 years of masters. ~**US\$12,000**

Grants (~US\$10,400)

- May 2019 Doctoral Student Research Grant. City University of New York. Improving biodiversity prediction in the Brazilian Atlantic Rainforest: Mapping diversity and its environmental correlates. **US\$1,500. PI.**
- October 2018 Interdisciplinary Seed Grant. Center for Biodiversity under Environmental Change, City College of New York. “Exploring the potential of Google Earth Engine and Synthetic Aperture Radar satellite products to generate GIS layers of biologically relevant variables”. **US\$2,500. Co-PI** with Derek Tesser.
- March 2018 ERI Provost’s Pre-Dissertation Research Fellowship. City University of New York. Responses to environmental change in amphibians of the cold tropics: demographic and physiological processes in the southern AF (*Boana prasina*,) and in the highlands of the Colombian Andes (*Pristimantis bogotensis*). **US\$5,000. PI.**
- May 2017 Doctoral Student Research Grant. City University of New York. Improving biodiversity prediction in the Brazilian Atlantic Rainforest: Mapping diversity and its environmental correlates. **US\$1,400. PI.**

Travel awards (~US\$1,950)

- July 2019 Travel Award to attend the 56th Annual Meeting of the Association for Tropical Biology & Conservation. Antananarivo, Madagascar. Association for Tropical Biology and Conservation. **US\$500.**
- December 2018 Travel Award to attend the V Congreso Colombiano de Zoología, Bogotá, Colombia. Asociación Colombiana de Zoología. **US \$100**
- March 2016 Travel Award to attend the Annual Meeting of the Association for Tropical Biology & Conservation. Montpellier, France. Association for Tropical Biology and Conservation. **€500**
- December 2014 Travel award to attend the IV Congreso Colombiano de Zoología. Cartagena, Colombia. Asociación Colombiana de Zoología. **US\$250**
- May 2012 Travel Award to attend the 49th Annual Meeting of the Association for Tropical Biology & Conservation. Bonito, Brazil. Facultad de Ciencias, Universidad de los Andes. **US\$500**

Invited Presentations (* invited departmental seminars)

9. **Paz A***. Environments shape the distribution of biodiversity at different spatial scales. Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) Biodiversity Seminar. **June 21st 2023**. Birmensdorf, Switzerland
8. Blair Mary E, **Paz A**. Wallace: un software para estimar la distribución de especies y cuantificar cambios en la biodiversidad. IV Simposio Colombiano de modelación de distribución dentro del VI Congreso Nacional Zoología. **March 27-31stth 2023**. Montería, Colombia.
7. **Paz A**, Barandun M, Maynard D. Are there latitudinal gradients in the environmental breadth of plants?. **NY Regional SDM Discussion Group. March 24th 2023**. American Museum of Natural History, New York, USA.
6. **Paz A***. Patrones de biodiversidad y sus relaciones con los ambientes en la Mata Atlántica. Seminario del Programa de Biología Aplicada, Universidad Militar Nueva, Cajicá, Colombia. **November 2022**.
[Spanish]

5. **Paz A***. Observing and predicting patterns of biodiversity using remote sensing data: A study case from the Brazilian Atlantic rainforest. GI-Forum, Institute for Geoinformatics, Universität Münster, Germany. **October 2021**.
4. **Paz A.*** Observando la biodiversidad desde el espacio. Seminario del Instituto de Biología de la Universidad Nacional Autónoma de México (UNAM). **October 2020**. Virtual and available on Youtube. [Spanish]
3. **Paz A.** Near real time spatial prediction of biodiversity change in the Atlantic Forest of Brazil. **NY Regional SDM Discussion Group. December 6th 2019**. American Museum of Natural History, New York, USA.
2. **Paz A***, Silva TS, Brown J, Cordeiro CLO, Aguirre-Santoro J, Kaehler M, Assis C, Goldenberg R, Caddah MK, Reginato M, Freitas AVL, d’Horta F, Filho HB, Lyra ML, Amaro RC, Silva-Brandão KL, Rodrigues MT, Michelangeli FA, Miyaki C, Lohmann L, Carnaval AC. Mapping diversity and its environmental correlates in the Brazilian Atlantic Forest. Symposium *Broad-scale determinants of tropical diversification and community assembly*. **56th Annual Meeting of the Association for Tropical Biology & Conservation. 30 July-3 August 2019**. Antananarivo, Madagascar.
1. **Paz A***, Ibáñez R, Lips KR, Crawford AJ. Testing the role of ecology and life history in structuring genetic variation across a landscape: A comparative ecophylogeographic approach. Symposium *DNA Barcodes and Beyond: Developing and Utilizing Community-Wide DNA Sequence Data to Understand Ecology and Evolution of Tropical Biodiversity*. **49th Annual Meeting of the Association for Tropical Biology & Conservation. 18-22 June, 2012**. Bonito, Brazil.

Panel discussions

Forests in Climate Change: How can global ecological restoration be achieved participated along with Dr. Thomas Crowther, Dr. Lalasia Bialic-Murphy, Dr. Daisy Dent and Dr. Fidel Chiriboga and moderated by Mikael Kergerus. **Landesmuseum Zürich, Switzerland . March 24th 2022**.

Computer Skills

R programming (Fluent), Python (Intermediate), ArcGIS, QGIS, Google Earth Engine (Beginner)

R package development

Co-lead developer for Wallace EcoMod a shiny app for species distribution modelling

(<https://wallaceecomod.github.io>)

Codeveloper for ChangeRangeR an R package for reproducible biodiversity change metrics from species distribution estimates (<https://cmerow.github.io/maskRangeR/changeRangeRwebsite.html>)

Languages

Spanish (native), English (Fluent, TOEFL iBT 111/120), French (Fluent, Baccalauréat Scientifique Mention Bien), Portuguese (Advanced reading and listening, Intermediate speaking), German (Beginner, A2)

Teaching Experience (Teaching Evaluation score: TE)

Graduate courses

Teaching Assistant: Sustainable Development. MBA. Universidad de Los Andes. May-June 2015

Undergraduate courses

Adjunct Lecturer: Bio 228, Ecology and Evolution. City College of New York. August-December 2016 and 2019.

In charge of teaching the laboratory section of the course including making and grading exams, grading lab reports and creating some Laboratory guides for all sections (on species distribution modeling and on the evolution of vertebrates as a fieldtrip to the American Museum of Natural History).

Lecturer: Biogeography; Pontificia Universidad Javeriana. Bogotá, Colombia. July 2014- June 2015. (TE: 5.72/6)

Teaching Assistant: Biostatistics. Universidad de Los Andes. January-May 2012 (TE: 3.96/4, 3.95/4) and August 2010- May 2011 (TE: 3.55/4, 3.87/4, 3.91/4)

In charge of the laboratory section, teaching students how to use R for statistical analyses.

Teaching Assistant: Evolutionary Genetics. Universidad de Los Andes. August-December 2011 (TE: 3.62/4)

In charge of the laboratory section, teaching students how to use R, Arlequin, DNAsp and several other population genetics software.

Undergraduate teaching assistant: Biostatistics; Universidad de Los Andes. January-May 2010

Undergraduate teaching assistant: Evolution; Universidad de Los Andes. January-May 2010

Undergraduate teaching assistant: Animal Physiology; Universidad de Los Andes. August-December 2009

Undergraduate teaching assistant: Mathematics 3; Universidad de Los Andes. August-December 2009

Short Courses taught (language specified if different from English)

Introducción al modelamiento de distribución de especies. Asociación Colombiana de Herpetología. August 5-14, 2021 (24 hours total). Main instructor. With invited talks by Nicolas Urbina and Valentina Grisales. [Spanish]

Workshops taught (language specified if different from English)

SDM Workshop using *Wallace*: Reinforcing the capacity for conservation science and planning for young West African conservationists. Co-organizer and lecturer with Jamie Kass. Hosted by THRESCOAL in partnership with Project Mecistops and Université de Nangui-Abrogoua. June 23th and 24th 2022 (14 hours). [English and French]

ARSET- Species distribution modeling with remote sensing. Guest speaker for one of three sessions. Organized by NASA's Applied Remote Sensing Training Program. August 17 2021.

Modelación de distribución de especies BÁSICO y amigable (integrando BioModelos y Wallace). Co-organizer with: María Angela Echeverry, Elkin Noguera-Urbano & Nicolas Urbina. Maestría en Conservación y Uso de la Biodiversidad, Pontificia Universidad Javeriana, Bogotá, Colombia. January 2021. [Spanish]

Species distribution modeling for conservation in R and Wallace. (3 times). Co-organizer with Matthew Aiello-Lammens, Jamie Kass and Gonzalo E. Pinilla; Student Conference in Conservation Science at the American Museum of Natural History, New York, USA. October 2018 , October 2019 & October 2020

Invited lectures

8. Observing and predicting patterns of biodiversity using remote sensing data in a machine learning framework **Application of Machine Learning in Plant Sciences, 10th Summer school of the Zurich-Basel Plant Science Center** . Einsiedeln, Switzerland. **September 2022.**
7. Los modelos de nichos y sus aplicaciones y usando Wallace para hacer modelos. **Biología de anfibios.** Undergraduate class. Universidad de los Andes, Colombia. **April 2022.** [Spanish]
6. Wallace: un software para estimar distribuciones de especies y cuantificar cambios en la diversidad. **Biodiversidad y Cambio climático.** Undergraduate class. Universidad de los Andes, Colombia. **May 2021.** [Spanish]
5. Los modelos de nichos y sus aplicaciones en biología evolutiva. **Curso Introductorio de modelado de nicho ecológico y de distribución de especies.** All level class. Universidad de Pamplona, Colombia. **November 2020.** [Spanish]

4. Observando la biodiversidad desde el espacio. *Ecología de Comunidades*. Undergraduate class Pontificia Universidad Javeriana, Bogotá, Colombia. **November 2020**. [Spanish]
3. Los modelos de nichos y sus aplicaciones en biología evolutiva. *Tópicos avanzados en cambio climático*. Graduate class. Universidad Militar Nueva Granada, Cajicá, Colombia. **October 22nd 2020**. [Spanish]
2. Can we use environmental descriptors to predict diversity patterns? **Ecology and Evolution (Biology 228)**. Undergraduate class.. City College of New York, New York, USA. **February 21st 2020**
1. Presence of an amphibian threat, the chytrid fungus in Colombia, South America. **Ecology and Evolution (Biology 228)**. Undergraduate class. City College of New York., New York, USA. **Spring 2018**

Advising & Mentoring

Student advising

Fall 2022-2023	Felix Specker , Master's thesis in Computational Biology and Bioinformatics at ETH Zürich. (Co-advisor).
Fall 2022-2023	Jeffrey Zweidler , Undergraduate thesis in Computer Science at ETH Zürich. (Co-advisor)
2020-Present	Natalia Suarez , Master's thesis at Universidad Militar Nueva Granada (Co-advisor). Thermal ecology of <i>Anolis tolimensis</i> and <i>Mabuya zuliae</i> in an altitudinal gradient of the Central and Eastern Cordillera of Colombia. (To defend December 2022)
2021-2022	Yuber Doquersana Ortega , Undergraduate thesis at Universidad de los Andes (Main advisor). Predictores de diversidad en anfibios de la Amazonía: una aproximación por aprendizaje automático. (Defended June 7 th 2022, Prize for best biology thesis).
2021	Laura Hederich , Undergraduate thesis at Universidad de los Andes (Co-advisor). Estimación de la geodiversidad en áreas de páramo en Colombia. (Defended in December 2021, Prize for 2nd best biology thesis).
2019-2021	Loren Araque , Undergraduate thesis at Universidad Militar Nueva Granada (Co-advisor). Distribution patterns of lizards in the 3 Cordilleras of Colombia (defended in August 2021, accepted with honors).
2019-2020	Miguel Banoy , Undergraduate thesis at Universidad Militar Nueva Granada (Co-advisor) Effect of climate change on the distribution of high elevation amphibians in Colombia (defended July 2020).
Fall 2011-Spring 2012	Gloria Angelica Gonzalez undergraduate thesis at Universidad de Los Andes (Co-advisor). Vertical and horizontal range changes of Colombian amphibians during the pleistocene's last glacial maximum (published in 2019, see above).

Student mentoring (short projects, internships)

2022 2023	Yan Zhang . PhD visiting student from Fudan University (Co-mentor with Daniel Maynard). Mapping day and night global soil respiration and the effect of climate change.
Spring 2022	Felix Specker . Master's project for computational biology at ETH (Co-mentor). R package for tree name standardization across databases. (Paper submitted Specker et al)
Summer-Fall 2022	Marco Barandun . (Main mentor). Tree niche breadth and range across latitudinal gradients do trees follow Rapoport's rule? Are invasive species inherently different from non-invasive species in their functional and niche spaces? (Paper in review)

- 2018 **Leyla Hernandez.** Master student at CCNY. Mentored on a project on cleaning amphibian locality databases for species distribution modeling. (Published in Paz et al. 2022)
- 2016-2018 **Lilian Sayuri-Ouchi de Melo.** Visiting PhD student at CUNY from São Paulo State University. Ecological and historical drivers of spatial patterns of taxonomic, phylogenetic, and functional diversity in South American anurans (Paper submitted Melo et al).

Professional Experience

- January 2024-Present **Assistant Professor.** Université de Montréal, Montréal, Canada.
- July 2021-November 2023 **Postdoctoral Researcher.** ETH Zürich. Crowther Lab.
Global patterns of tree biodiversity, mismatches between ecological and evolutionary dimensions and the influence of environments.
- December 2019-April 2021 **Research assistant:** Wallace EcoMod NSF and NASA project with City College of New York and the American Museum of Natural History. In charge of software maintenance (unit testing, coding support) and development of new conservation biology oriented functionalities (e.g. community composition metrics).
- August 2015-August 2016 **Graduate assistant:** Graduate Center, City University of New York.
- February 2015-August 2015 **Research assistant:** School of management, Universidad de Los Andes. In charge of analyzing data for a project on sustainable cultivation of cocoa in Ecuador and coffee in Colombia.
- March 2013-Sept 2014 **Researcher at the Conservation Genetics Lab.** Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Bogotá, Colombia. In charge of generating the phylogenetic diversity maps for plants, birds and amphibians. Also supported the iBolColombia network and other lab projects as soil metagenomics and population genetics of frogs victim of illegal traffic.
- Sept 2012-March 2013 **Researcher at the Conservation Biology Program.** Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Project in Environmental planning for Conservation in operative areas of Colombia's national oil company Ecopetrol.
- August-December 2011 **Research assistant:** *The effect of environmental variation on amphibian diversification and prevalence of their mortal pathogen: A transect among wetlands from the Magdalena Medio to the Orinoquía;* Universidad de Los Andes. Conducting and organizing field trips, DNA barcode data analyses and niche modeling.

Oral presentations (* Presenter)

19. **Paz A***, Hernandez L, Melo L, Lyra M, Haddad C, Carnaval AC. Diversidad funcional y filogenética de ranas arborícolas (anura: Hylidae) de la mata atlántica brasilera. VI Congreso Colombiano de Zoología. **27-31 March 2023.** Montería, Colombia
17. Carnaval AC*, **Paz A**, French C, Bertola L, McDonald K, Hickerson M, Silva T. Indirect Remote Sensing of Biodiversity: Using Environmental Proxies to Monitor and Quantify Shifts in Species and Genetic Diversity. **World Biodiversity Forum. 23-28 February 2020.** Davos, Switzerland.
16. **Paz A***, Silva TS, Brown J, Cordeiro CLO, Aguirre-Santoro J, Kaehler M, Assis C, Goldenberg R, Caddah MK, Reginato M, Freitas AVL, d'Horta F, Filho HB, Lyra ML, Amaro RC, Silva-Brandão KL, Rodrigues MT, Michelangeli FA, Miyaki C, Lohmann L, Carnaval AC. Mapping diversity and its environmental correlates in the Brazilian Atlantic Forest. **Dimensions US-Biota São Paulo: A**

multidisciplinary framework for biodiversity prediction in the Atlantic forest hotspot. 12 July 2019. São Paulo, Brazil.

15. **Paz A***, Silva TS, Brown J, Cordeiro CLO, Aguirre-Santoro J, Kaehler M, Assis C, Goldenberg R, Caddah MK, Reginato M, Freitas AVL, d'Horta F, Filho HB, Lyra ML, Amaro RC, Silva-Brandão KL, Rodrigues MT, Michelangeli FA, Miyaki C, Lohmann L, Carnaval AC. Mapeando la diversidad en la Mata Atlántica y su relación con variables ambientales. **V Congreso Colombiano de Zoología. 3-7 December 2018.** Bogotá, Colombia.
14. **Paz A***, Carnaval AC. A Multidisciplinary framework for biodiversity prediction in the Brazilian Atlantic Forest Hotspot **NASA Biodiversity and Ecological Forecasting Meeting. 24-26 April 2018.** Washington DC, USA.
13. **Paz A***, Brown J, Amaro RC, Cordeiro CLO, Freitas AVL, Filho HB, Lohmann L, Lyra ML, Michelangeli FA, Miyaki C, Reginato M, Rodrigues MT, Silva-Brandão KL, Silva TS, Carnaval AC. Improving biodiversity prediction in the Brazilian Atlantic Rainforest: Mapping diversity and its environmental correlates. **Climate Change Biogeography. International Biogeography Society. 20-24 March 2018.** Évora, Portugal
12. Velez MA*, Robalino J, Cardenas JC, **Paz A.** Impact of Collective Titling on Forest Cover in the Colombian Pacific Region. **Environment for Development (Efd) Initiative. 1st Forest Collaborative Workshop. 27-28 June 2017.** Athens, Greece.
11. **Paz A***, Spanos Z, Brown J, Lyra M, Haddad C, Rodrigues MT, Carnaval AC. Filogeografía comparada de dos ranas de cristal (*Vitreorana*) endémicas de la mata atlántica de Brasil. **I Congreso Colombiano de Herpetología. 20-24 November 2016.** Medellín, Colombia.
10. Curiel Yuste J, Heres AM, Ojeda G, **Paz A**, Pizano C, García-Angulo D, Lasso E*. Abrupt, non-linear responses of soil heterotrophic respiration (RH) to intense climatic fluctuations may result in rapid losses of soil organic carbon in tropical high elevation ecosystems (Páramos). **53rd Annual Meeting of the Association for Tropical Biology & Conservation. 19-23 June 2016.** Montpellier, France.
9. **Paz A***, Gonzalez GA, Crawford AJ. Differential response of Andean frogs by elevational range to Pleistocene climate change inferred from a distribution modeling analysis. **53rd Annual Meeting of the Association for Tropical Biology & Conservation. 19-23 June 2016.** Montpellier, France.
8. Flechas SV, **Paz A***, Crawford AJ, Acevedo A, Arboleda A, Bolívar W, Castro F, Franco R, Mojica C, Muñoz A, Quintero MP, Sarmiento C, Amézquita A. Environmental variables predict the distribution of the pathogenic fungus *Batrachochytrium dendrobatidis* in Colombia. **X Latin American Congress of Herpetology. 1-5 December 2014.** Cartagena, Colombia.
7. Guarnizo CE*, **Paz A**, Muñoz, AG, Flechas SV, Crawford AJ. DNA barcoding survey of amphibians across the Eastern Cordillera of Colombia and the impact of the Andes on cryptic diversity. **X Latin American Congress of Herpetology. 1-5 December 2014.** Cartagena, Colombia.
6. Cortes Gomez AM*, Salgado-Negret B, **Paz A**, Hernandez O, Gonzalez MA*. Patrones de diversidad funcional de los anfibios en páramos colombianos. **X Latin American Congress of Herpetology. 1-5 December 2014.** Cartagena, Colombia.
5. **Paz A**, Salgado-Negret B, Cortes Gomez AM, Lopez JP, Pinto A, Bello JC, Gonzalez MA*. Explorando los patrones de diversidad taxonómica, filogenética y funcional de las aves de páramo en Colombia. **IV Congreso Colombiano de Zoología. 1-5 December 2014.** Cartagena, Colombia.
4. Gonzalez MA*, **Paz A**, Madriñan S, Restrepo S. iBOL Colombia advances and perspectives. **Fifth International Barcode of Life Conference. 27-31 October 2013** Kunming, China.
3. González MF*, Barriga J, Corzo L, Corzo G, Díaz A, García H, Hernández OL, Longo M, Mesa L, **Paz A**, Portocarrero M. Planeación Ambiental para la Conservación de la Biodiversidad en las Áreas Operativas de Ecopetrol-Componente Flora. **VII Congreso Colombiano de Botánica. 2013.** Ibagué, Colombia.

2. **Paz A***, Ibáñez R, Lips KR, Crawford AJ. Testing the role of ecology and life history in structuring genetic variation across a landscape: A comparative ecophylogeographic approach. **VII World Congress of Herpetology. 8-14 August 2012.** Vancouver, Canada.
1. Crawford AJ*, Ibáñez R, Lips KR, **Paz A**, Driskell A. Cryptic diversity and diversification in the amphibian fauna of Panama. **VII World Congress of Herpetology. 8-14 August 2012.** Vancouver, Canada.

Poster presentations

- Paz A***, Brown J, Damasceno R, Reginato M, Michelangeli F, Carnaval A. Improving biodiversity prediction in the Brazilian Atlantic Rainforest: Mapping diversity and its environmental correlates. **NASA Biodiversity and Ecological Forecasting Meeting. May 3-6 2016.** Silver Springs, USA.
- Crawford AJ*, Muñoz AG, Guarnizo C, **Paz A**, Flechas SV. DNA barcoding survey of amphibians across the Eastern Cordillera of Colombia. **VII World Congress of Herpetology. 8-14 August 2012.** Vancouver, Canada.
- Paz A***, Moreno S, Quiroga V. Conservación de las ranas venenosas (Anura: Dendrobatidae) en Colombia: Una perspectiva filogenética. **III Congreso Colombiano de Zoología. 21-26 November 2010.** Medellín, Colombia.

Professional Service

Event organization

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| June 2022 | Organizing committee. Expert insights on research-policy collaborations to inspire researchers to engage in policy. World Biodiversity Forum - 2022, Davos, Switzerland. |
| August 2018 | Organizing committee. Comparative and mechanistic Phylogeography in the big data era symposium. 2 nd Joint Conference on Evolutionary Biology 2018, Montpellier, France. |
| March 2018 | Co-organizer. Plenary Symposium: Back to the future: integrating paleomodels, genomic and functional data to understand biological responses to environmental change. IBS Climate Change. Evora, Portugal. |
| November 2016 | Co-organizer. Symposium on landscape genetics and phylogeography of neotropical herpetofauna. I Colombian Congress of Herpetology. Medellín, Colombia. |
| December 2014. | Organizing committee. 1 st Latin American symposium on systematics and biogeography of amphibians and reptiles. X Latin American Congress of Herpetology. Cartagena, Colombia |
| December 2014. | Organizing committee. Third Colombian symposium on biodiversity informatics. IV Congreso Colombiano de Zoología. Cartagena, Colombia |

Journal Editor

Associate editor: Revista Latinoamericana de Herpetología (5 manuscripts handled)

Journal Reviews (34 manuscripts for 18 journals)

Animal Conservation (1); BMC Evolutionary Biology (1); BMC Frontiers in Zoology (3); Biotropica (5); Current Zoology (2); Environmental Conservation (1); Evolutionary Ecology (2); Genome (1); Heredity (2); Journal of Biogeography (2); Journal of Herpetology (1); Molecular Ecology (2); Molecular Ecology Resources (1); PLoS (2); PeerJ (3); Science of the Total Environment (2), Scientific Reports (2); South American Journal of Herpetology (1).

Grant Reviews

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| January 2023 | Part of interview panel Fulbright “Investigación en la Amazonía” |
| October 2022 | Academic reviewer for Fulbright-Colombia fellowship for Visiting Researchers. |
| Summer 2020 | Academic reviewer for Fulbright-MinCiencias fellowship for biology PhD. |
| 2018 & 2019 | Reviewed proposals for the “Botas al campo” grant for field work working with Colombian herpetofauna for Asociación Colombiana de Herpetología. |

Volunteer

2020-Present	Member of the IUCN Species survival commission Amphibian Specialist Group for Colombia
2020-Present	Skype a Scientist volunteer. Giving virtual talks to K-12 schools about frogs, climate change and biogeography (~6 sessions in English and Spanish).
2018-2021	Mentor, 1000 Girls, 1000 Futures . New York Academy of Sciences (NYAS). Virtually meeting with one high school mentee (from overseas) on a regular basis to talk about life as a woman in STEM and give career and personal advice as well as help in completing the NYAS course. Starting 2020 transitioned to group mentor.
Spring 2016-Spring 2017	Global Guide in NYC public schools, Global Classroom . One To World. Workshops on different topics in relation to Colombia including sustainability and conflict.
Fall 2015-Spring 2016	Mentor, CCNY Women in Science . The City College of New York, New York, NY. Meeting with one undergraduate mentee on a regular basis to talk about life as a woman in STEM and give career and personal advice.

Undergraduate thesis evaluation

January 2020	Served on evaluation committee for Nicolas Arias at Universidad Militar Nueva Granada. Thesis title: “Conocimiento del Género <i>Bolitoglossa</i> (Caudata: Plethodontidae) en Colombia: Estado del Arte y Aproximación Filogenética y Biogeográfica Enfocada en la Cordillera Oriental.”
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Professional memberships

2017-2019	Member, New York Academy of Sciences (NYAS)
2017-2018	Member, Society of Systematic Biologists (SSB)
2016-2021	Member, Association for Tropical Biology and Conservation (ATBC)
2015-2021	Member, Society for the Study of Evolution (SSE)
2015-2019	Member, CCNY Women in Science group
2010-Present	Member, Asociación Colombiana de Herpetología (ACH)

Additional Training

Sustainable development

May 2020	Objetivos de Desarrollo sostenible para América Latina by Universidad de los Andes on Coursera. Certificate earned May 6th 2020.
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GIS and niche modeling

13-17 May 2013	Advanced course on species distribution modeling . Organized by the Laboratory of applied biogeography and bioacoustics of the Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Villa de Leyva, Colombia.
6-8 February 2013	Workshop: GIS and environment during the CEGeoIC 2013 meeting. Bogotá, Colombia.
18-22 June 2012	Workshop: Applying landscape ecology for Biodiversity conservation during the 49 th annual meeting of the Association for tropical biology and conservation. Bonito, Brazil.

Genetics and evolution

4-8 November 2019	“Workshop: SLiM: An evolutionary simulation framework” . Organized by the City University of New York, Columbia University, and the American Museum of Natural History. New York City, USA.
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- Fall 2019 (2 weekends) **“Workshop: RADCamp NYC 2019:”**. Organized by Columbia University and the City University of New York. New York City, USA
- 16-18 July 2018 **“Workshop: Analysis of RAD-Sequence Data (RADCamp):”**. Organized by the City College of New York & Universidade de São Paulo. São Paulo, Brazil.
- 10-12 October 2013 **“CEBA Thematic school. Advanced methods in Neotropical Biogeography: focus on the Guiana Shield”**. Organized by the Laboratoire d’excellence: Centre d’études de la biodiversité amazonienne. Kourou, French Guiana. **(Invited to participate)**
- 20-24 May 2013 **“Extending and Enhancing DNA Barcoding Research in Argentina and Neighboring Countries: Fifth Leading Labs Training Workshop”**. Organized by Museo Argentino de Ciencias Naturales “Bernadino Rivadavia”, the Canadian Centre for DNA Barcoding and the International Barcode of Life Project. Buenos Aires, Argentina.
- 19-31 August 2012 **Sao Paulo School of advanced Science- Evolution. Brazil. (Invited to participate)**

[Herpetology](#)

- 7-14 September 2012 **Graduate Course: “Colombian Herpetology an integrative vision”** organized by Universidad de Antioquia and Asociación Colombiana de Herpetología. Vichada, Colombia.