Bibiana Rojas, Ph.D.

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Languages: Spanish (native), English (full proficiency), French (B2), German (B1)

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Current position:
Associate Professor of Global Change Biology
Dept. of Interdisciplinary Life Sciences
Konrad Lorenz Institute for Ethology
University of Veterinary Medicine Vienna
Savoyenstraße1,1160 Vienna, Austria

Education

Education: 2007-2012 PhD. in Life and Environmental Sciences (Animal Behaviour and Sensory Ecology), Deakin University (Australia) • **2002-2005** MSc. in Biological Sciences-Biology U. of Los Andes (Colombia) • **1996-2002** BSc. in Biology, U. of Los Andes (Colombia).

Academic positions

2025-present: Associate Professor of Global Change Biology, Department of Interdisciplinary Life Sciences, Konrad Lorenz Institute of Ethology, University of Veterinary Medicine, Vienna • **2021-2025 Assistant Professor of Global Change Biology**, Department of Interdisciplinary Life Sciences, Konrad Lorenz Institute of Ethology, University of Veterinary Medicine, Vienna • **2021-2023: Research Associate**, Department of Biology and Environmental Science, University of Jyväskylä • **2018-2021: Academy of Finland Research Fellow,** University of Jyväskylä (last two years [2022-23] declined to take up my current position) • **2012-2017: Postdoctoral researcher,** Predator-Prey Interactions Group, University of Jyväskylä, Finland • **2010-2012: HDR Scholar**, Deakin University, Australia • **2007-2010 : Teaching Assistant** (as an Exeter Graduate Fellow), University of Exeter, UK • **2001-2004** and **2005-2007: Science teacher** for Middle School (grades 5th through 8th), Advanced Biology (9th and 10th grades) and Environmental Sciences (11th grade) for High School, Los Nogales School

Career breaks

December 2019 – December 2020: Maternity leave

Mentoring and supervision experience

PhD x 7 (3 as main supervisor, 4 as co-supervisor) University of Veterinary Medicine (x3); University of Jyväskylä (x3); Vilnius University (x1) • ***Masters x 11:*** Erasmus Exchange Program, University of Veterinary Medicine Vienna-University of Århus (x1); Université de Paris Saclay (x1); Erasmus Exchange Program, University of Jyväskylä- University of Padova (x3); University of Vienna (x1); University of Jyväskylä (x3); University of Marseille (x1); University of Veterinary Medicine Vienna (x1) • **Bachelors x 5:** University of Magdalena (x2) and University of Quindío (x1), Colombia; Erasmus Exchange Program, University of Jyväskylä-University of Barcelona (x1); Erasmus Exchange Program Free University of Berlin-University of Veterinary Medicine Vienna (x1) • **Mentorship** of Latin American students: Juan David Carvajal Castro and Shirley Jennifer Serrano Rojas, currently PhD students at St. John's University, US and Stanford University, US, respectively. Other mentees: Ria Sonnleitner and Sarah Chaloupka (Austrian), University of Veterinary Medicine, Vienna, Austria.

Funding

Total obtained: ~€ 2'164,020

Examples of grants obtained: Principal Investigator Project: *"Mercury pollution effects on tropical frogs' health and behaviour"*; PI; FWF (Austrian Science Fund) – University of Veterinary Medicine Vienna; €449,900; Academy Research Fellowship 2018: "The silence of the Frogs: costs and benefits of cannibalism in a species threatened by a deadly disease"; PI. Academy of Finland – University of Jyväskylä; approx. € 900,000 • Nouragues Grant 2018: "Ecology and evolution of pool choice strategies in phytotelm-breeding frogs"; Joint PI; CNRS (National Centre for Scientific Research, France); € 10,000 • Labex-CEBA Grant 2013: "Aposematic polymorphism in the dyeing poison frog (*Dendrobates tinctorius*): A model vertebrate for the study of selection and speciation"; CoI (CNRS, France); € 20,000 • ASAB research grant: "*The simpler, the better: testing the effect of aposematic simplicity on predator avoidance learning*"; PI (Association for the Study of Animal Behaviour, UK); £2,980 (€ ~4,000)

Academic awards and honours

2019: Scientist of the Year 2019, Department of Biology and Environmental Science, University of Jyväskylä. • **2018: Academy Research Fellowship**, Academy of Finland (5y funding to kickstart my own research group with the project entitled "The silence of the frogs: costs and benefits of cannibalism in a species threatened by a deadly disease") • **Since 2018: Invited as a plenary or keynote speaker in scientific conferences, workshops or specialised symposia**, such as XIX National and XVI Iberoamerican Congress of Ethology and Evolutionary Ecology, Sevilla, Spain, September 2025, Plenary Speaker • EMPSEB 2025, Milovy, Czechia, June 2025, Plenary speaker • Workshop on Women in Evolutionary Biology, Max Planck Institute for Evolutionary Biology, Plön, Germany, May 2024 • Symposium on "Global Perspectives on the Frontiers of Herpetology", 2024 Meeting of the Society for the Study of Amphibians and Reptiles (SSAR, Ann Arbor, MI, US, July 2024 • Symposia on "Ecology, Evolution and Behavior of Phytotelm-Breeding Frogs" and "An Integrative Approach to Studying the Evolution of Visual Communication", 10th World Congress of Herpetology, Kuching, Malaysia, August 2024 • XII Latin American Congress of Herpetology, Bolivia, 2023, Plenary Speaker • BIOLOGY22, Switzerland, Plenary speaker • XXI Argentinian Congress of Herpetology, Plenary speaker • I Animal Behaviour Twitter Conference. Plenary Presenter • Symposium on "Overcoming implicit bias in the tropical science community for better conservation research and practice", 58th Annual Meeting of the Association for Tropical Biology and Conservation" I Symposium on Evolutionary Ecology, I Latin American Congress of Evolution • **2015: 'Scientific activity, public outreach and team spirit' award**, Centre of Excellence in Biological Interactions, University of Jyväskylä, Finland.

Leadership and service

Thesis Examiner (main or part of Examination committee):

PhD Theses (x7): Francesca Angiolani, University of Bern, Switzerland (2025); Daniela Pareja Mejía, Universidade Estadual de Santa Cruz, Bahía, Brazil (2025); Pablo Palacios, University of Los Andes, Bogotá, Colombia (2022); Erika Páez, Sorbonne University, Paris, France (2022); Javier Abalos, University of Valencia, Valencia, Spain (2021); Aravin Chakravarthi, Lund University, Lund, Sweden (2017).

MSc Theses (x5): Pablo Palacios, University of Los Andes, Colombia, (2017); Georgina Binns, Macquarie University, Australia (2018); Lysanne Hendrikx, University of Jyväskylä, Finland (2019); Brendan Baker, Western Sydney University, Australia (2020), Christopher Irvin, Macquarie University, Australia (2023)

Member of PhD thesis committee: Mileidy Betancourth, University of Los Andes, Colombia (2020-2022); Lisa Surber, University of Illinois, USA (2020-2025).

Roles in scientific journals and societies:

Since 2024: *Secretary:* International Society for Behavioral Ecology (ISBE)

Since 2020: *Associate Editor:* Evolutionary Ecology.

2022-2025: *Associate Editor:* Animal Behaviour (flag journal of the Association for the Study of Animal Behaviour and the Association for Animal Behavior)

2020-2021: *Consulting Editor*: Animal Behaviour.

2019-2021: *Editorial board member:* Scientific Reports.

Since 2016: Member of the *Scientific Committee* of *COLEVOL* (Colombian Association of Evolutionary Biology).

Peer-review activities

Journal articles: Peer review of >100 papers for >50 journals such as PNAS; Science; Ecology Letters; American Naturalist; Proceedings of the Royal Society of London B; Functional Ecology; Evolution; Biology Letters; J Evolutionary Biology; J Animal Ecology; eLife; Animal Behaviour; Behavioral Ecology; Behavioral Ecology and Sociobiology; Evolutionary Ecology; J Chemical Ecology; Biological Journal of the Linnean Society; Ecology and Evolution; Oikos; Scientific Reports; Communications Biology; and Royal Society Open Science, among others.

Grants: (2025 and 2020) Agence Nationale de Recherche, France; **(2025)** Human Science Frontiers Programme **(2018-2020)** "Botas al Campo (Boots on the Ground)" Research Grants, Colombian Herpetological Society (ACH), Colombia. **(2016)** "SDE/GWIS (Sigma Delta Epsilon/Graduate Women in Science) Fellowships", USA; **(2016)** "IKIAM Seed Funding", Universidad Regional Amazónica IKIAM, Ecuador.

Panel member Microbiology, Ecology and Evolution, Swiss National Science Foundation grant evaluation

Publications in the last five years (Names in bold denote group members; underlined names denote supervised MSc students; $^{B/M}$denote supervised BSc students and mentees).

Rojas B*, Rojas-Montoya M^{M}‡ & Carvajal-Castro JD‡ Beyond protection from predators: correlates and additional benefits of aposematic signalling. (‡Equal contribution). *Advances in the Study of Behaviour,* in press.

Rojas B*, Rueda-Solano LA & Vargas-Salinas F. Natural history in the backyard: a comment on Guevara-Fiore 2025. *Behavioral Ecology* arag008. DOI:10.1093/beheco/arag008

Schlippe Justicia L, Dittrich C, Nokelainen O **& Rojas B.*** 2026. Defensive colouration is not a reliable indicator of fungal infection in aposematic poison frogs. *Behavioral Ecology* araf137. DOI: 10.1093/beheco/araf137.

Schlippe Justicia L, Pašukonis A & **Rojas B*.** 2025. Phytotelmata. Quick Guide. *Current Biology* 35, R1127–R1141.

Burdfield-Steel E, Ottocento C, Furlanetto M, **Rojas B,** Nokelainen O & Mappes J. Honest signalling in predator-prey interactions: testing the resource allocation hypothesis. *Functional Ecology.*

Hagnier D‡, Dittrich C‡, Van den Bos M & **Rojas B*.** Habitat alteration impacts predation risk in an aposematic amphibian. (‡Equal contribution). *Journal of Zoology.*

Galarza JA, Nokelainen O, Brien ML, **Rojas B**, Valkonen J, Chunashvili T, Tasane T & Mappes J. Genetic and phenotypic variation in wood tiger moths from the Caucasus: insights into male warning colour variation. *Insect Science.*

Penacchio O, Hämäläinen L, **Rojas B,** Summers K, Yeager J, Sherratt T & Exnerová A. Cognitive ecology of surprise in predator-prey interactions. *Functional Ecology* **39**: 664-680.DOI: 10.1111/1365-2435.14750.

Mayer M, Schlippe Justicia L & **Rojas B*.** Phenotypic divergence across populations does not affect habitat selection in an Amazonian poison frog. *Global Ecology and Conservation* **75**, e03358. DOI:10.1016/j.gecco.2024.e03358

Rojas B* & Vargas-Salinas F. Developments in the study of poison frog evolutionary ecology II: decoding hidden messages in their coloration and unique behaviours*. Evolutionary Ecology* DOI: 10.1007/s10682-024-10316-1

Dittrich C, Hölzl F, Smith S, Fouilloux C, Parker DJ, O'Connell LA, Knowles LS, Hughes M, Fewings A, Morgan R, **Rojas B,** & Comeault A. Genome assembly of the dyeing poison frog provides insights into the dynamics of transposable element and genome-size evolution. *Genome Biology and Evolution* DOI: 10.1093/gbe/evae109

Vargas-Salinas F & **Rojas B*.** 2024. Developments in the study of poison frog evolutionary ecology I: social interactions, life history and space use across space and ontogeny. *Evolutionary Ecology* DOI: 10.1007/s10682-024-10296-2

Rojas B*, Dittrich C & Calhim, S. 2024. Testes size seen through the glass of amphibian care. *Trends in Ecology and Evolution* 39: 421-423. DOI: 10.1016/j.tree.2024.04.001

Schlippe Justicia L, Lemaire J, Dittrich C, Mayer M, Bustamante P & **Rojas B*.** 2024. Poison in the nursery: mercury contamination in the tadpole-rearing sites of an Amazonian frog. *Science of the Total Environment* 912:169450 DOI: 10.1016/j.scitotenv.2023.169450

Ottocento C‡, **Rojas B‡,** Burdfield-Steel E, Furlanetto M, Nokelainen O & Mappes J. 2024. Diet influences resource allocation in chemical defence but not melanin synthesis in an aposematic moth. ‡Shared first authorship. Accepted for publication in the *Journal of Experimental Biology* 227: jeb245946. DOI:10.1242/jeb.245946

Schlippe Justicia L, Mayer M, Lorioux-Chevalier U, Dittrich C, **Rojas B** & Chouteau M. 2023. Intraspecific divergence in sexual size dimorphism and reproductive strategies in a polytypic poison frog. *Evolutionary Ecology*. DOI: 10.1007/s10682-023-10280-2

Ringler E, **Rojas B,** Stynoski J & Schulte LM What amphibians can teach us about the evolution of parental care. *Annual Review of Ecology, Evolution and Systematics.* Vol.54. DOI:10.1146/annurev-ecolsys-102221-050519

Rojas B*, Lawrence JP & Márquez R. 2023. Amphibian Coloration: Proximate Mechanisms, Function, and Evolution. Pp. 219-258. In: G. Rueda-Moreno and M. Comas (Eds). *Evolutionary Ecology of Amphibians.* CRC Press.

Kikuchi, D.W., Allen, W.L., Arbuckle, K., Aubier, T.G., Briolat, E.S., Burdfield-Steel, E.R., Cheney, K.L., Daňková, K., Elias, M., Hämäläinen, L., Herberstein, M.E., Hossie, T.J., Joron, M., Kunte, K., Leavell, B.C., Lindstedt, C., Lorioux Chevalier, U., McClure, M., McLellan, C.F., Medina, I., Nawge, V., Páez, E., Pal, A., Pekár, S., Penacchio, O., Raška, J., Reader, T., **Rojas B.**, Rönkä, K.H., Rößler, D.C., Rowe, C. Rowland, H.M., Roy, A., Schaal, K.A., Sherratt, T.N., Skelhorn, J., Smart, H.R., Stankowich, T., Stefan, A.M., Summers, K., Taylor, C.H., Thorogood, R., Umbers, K., Winters, A.E., Yeager, J. & Exnerová, A. The evolution and ecology of multiple antipredator defences. *Journal of Evolutionary Biology.* DOI: 10.1111/jeb.14192

[B]Hernández T, Rueda LA, Valkonen J & **Rojas B*.** 2023. Predator response to the coloured eyespots and defensive posture of Colombian four-eyed frogs. *Journal of Evolutionary Biology.* DOI: 0.1111/jeb.14193

Fouilloux C, Yovanovich C, Stynoski J & **Rojas B***. 2023.Visual environment of rearing sites affects larval response to perceived risk in poison frogs. *Journal of Experimental Biology* 226: jeb245822 DOI:10.1242/jeb.245822

Lawrence JP, **Rojas B**, Blanchette A, Saporito R, Mappes J, Fouquet A & Noonan BP. 2023. Linking predator responses to alkaloid variability in poison frogs. *Journal of Chemical Ecology* DOI:10.1007/s10886-023-01412-7

Ottocento C, Winters A, **Rojas B**, Mappes J & Burdfield-Steel E. Not just the sum of its parts: geographic variation and non-additive effects of pyrazines in the chemical defence of an aposematic moth. *Journal of Evolutionary Biology*. DOI: 10.1111/jeb.14142

Pašukonis A, [M]Serrano-Rojas SJ, Fischer MT, Loretto MC, Shaykevich DA, **Rojas B**, Max Ringler M, Roland A-B, Marcillo-Lara A, Ringler E, Rodríguez C, Coloma LA, O'Connell LA. 2022. Contrasting parental roles shape sex differences in poison frog space use but not navigational performance. *eLife* 11:e80483. DOI:10.7554/eLife.80483

Schlippe-Justicia L, Fouilloux C & **Rojas B***. Poison frog social behaviour under global change: potential impacts and future challenges. *Acta Ethologica – Special Issue: "Impact of global change on social interactions: ecological and fitness implications"*.DOI: 10.1007/s10211-022-00400-6 PDF

Fouilloux, C., Fromhage, L., Valkonen, J & **Rojas, B*.** Size-dependent aggression towards kin in a cannibalistic species. ***Behavioral Ecology*** 33:582–591. doi.org/10.1093/beheco/arac020

Fouilloux C, Yovanovich C & **Rojas B***. Tadpole responses in visually challenging environments: what we (don't) know and perspectives for a sharper future. ***Frontiers in Ecology & Evolution*** 9:766725. doi.org/10.3389/fevo.2021.766725

[M]Carvajal-Castro, J. D., Vargas-Salinas, F., Casas-Cardona, S., **Rojas, B.** & Santos, J.C. Aposematism facilitates the diversification of parental care strategies in poison frogs. *Scientific Reports 11:19047.*

Fouilloux, C., [M]Serrano-Rojas, S. J.*, [M]Carvajal-Castro, J. D.*, Valkonen, J., Gaucher, P., Fischer, M.-T., Pašukonis, A.‡ & **Rojas, B.‡** Pool choice in a vertical landscape: tadpole rearing site flexibility in phytotelm-breeding frogs (‡ Equal contribution as senior authors). ***Ecology & Evolution*** 11: 9021– 9038.

Science Communication and outreach. My research has been covered by several different outlets, such as The New York Times, Science Daily, Discover Magazine, the 'Science Shot' section in Science Magazine, Forbes Magazine, Scientific American's *'60 second science*' podcast, The Scientist, Inside Science, Phys.Org, Biosphere Magazine, IFLScience!, Discover Magazine, among others. In 2025, it was featured in the BBC series "Parenthood", narrated by David Attenborough. I have also contributed to Colombian science outreach project 'Ciencia Café Pa' Sumercé' (Science for You), where I was interviewed to explain my findings on target-specific chemical defences in an aposematic moth to a lay audience. For further details about media coverage, please visit my personal website: www.bibianarojas.co/news