

# Dr. Christophe BOTELLA



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## Education

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- **2009-2010:** Lycée Pierre de Fermat, 1st year of preparatory school, MPSI (Maths-Physics).
- **2010-2012:** LEGTA Auzeville, 1st and 2nd years of preparatory school BCPST (Biology-Chemistry and Maths).
- **2012-2016:** AgroParisTech, Paris Institute of Technology for Life, Food and Environmental Sciences. With International Experience Certificate (CEI) during a Gap year (2014-2015). Last year: **M2 Mathematics for Life Sciences** (University Paris-Sud / 11).

## Academic positions

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- **October 2023 – Present:** Permanent research scientist (Chargé de recherche /ISFP), INRIA, Iroko team, UMR LIRMM, University of Montpellier. Member of the Pl@ntNet team.
- **March 2024 – Present:** Lecturer in Statistics at Institut Agro Montpellier.
- **February 2023 – September 2023:** PostDoc INRIA for the MAMBO Horizon EU project, in the Pl@ntNet group, LIRMM, Montpellier, France. Supervisor: Alexis Joly (Inria).
- **August 2021 – January 2023:** PostDoc Fellow at Center for Invasion Biology (C.I.B.), Stellenbosch University, South Africa. Assessing the current and potential value of iNaturalist data for invasion science in South Africa. Supervision: Prof. David M. Richardson (C.I.B., Stellenbosch University) and Prof. Cang Hui (BioMath, C.I.B., Stellenbosch University).
- **December 2019 – June 2021:** PostDoc CNRS at Laboratoire d'Ecologie Alpine (LECA). Comparison of trophic interaction network architectures using graphs embedding methods. Supervision: Vincent Miele (CNRS, LBBE), Wilfried Thuiller (CNRS, LECA), Stéphane Dray (CNRS, LBBE), Catherine Mathias (CNRS, LSPM). Funded by ANR project EcoNet.
- **October 2016 – September 2019:** PhD candidate INRA, at UMR AMAP, Montpellier. Statistical methods for plant species distribution modeling based on massive occurrences from citizen sciences programs. Supervision: Alexis JOLY (CR INRIA Zénith), Pascal MONESTIEZ (DR, INRA BioSP), François MUNOZ (Pr U. Grenoble). Funded by the INRA - INRIA national scholarship 2016. Defended on 08/10/2019 for the grade of Doctor in Biostatistics.

## Selected publications

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- Botella, C., Joly, A., Bonnet, P., Monestiez, P., & Munoz, F. (2018). A Deep Learning Approach to Species Distribution Modelling. In *Multimedia Tools and Applications for Environmental & Biodiversity Informatics* (pp. 169-199). Springer, Cham. [https://doi.org/10.1007/978-3-319-76445-0\\_10](https://doi.org/10.1007/978-3-319-76445-0_10)
- Botella, C., Joly, A., Monestiez, P., Bonnet, P., & Munoz, F. (2020) Bias in presence-only niche models related to sampling effort and species niches: lessons for background points selection. *PLOS One*, 15(5), e0232078. <https://doi.org/10.1371/journal.pone.0232078>
- Botella, C., Joly, A., Bonnet, P., Munoz, F., & Monestiez, P. (2021). Jointly estimating ecological niches and spatial sampling effort from multiple species occurrences. *Methods in Ecology and Evolution*, 12(5), 933-945. <https://doi.org/10.1111/2041-210X.13565>
- Botella, C., Dray, S., Matias, C., Miele, V., & Thuiller, W. (2021). An appraisal of graph embeddings for comparing trophic network architectures. *Methods in Ecology and Evolution*, 13(1), 203-216. <https://doi.org/10.1111/2041-210X.13738>
- Botella, C., Bonnet, P., Hui, C., Joly, A., & Richardson, D. M. (2022). Dynamic Species Distribution Modeling Reveals the Pivotal Role of Human-Mediated Long-Distance Dispersal in Plant Invasion. *Biology*, 11(9), 1293. <https://doi.org/10.3390/biology11091293>

- Gaüzère, P., O'connor, L., Botella, C., Poggiato, G., Münkemüller, T., Pollock, L. J., ... & Thuiller, W. (2022). The diversity of biotic interactions complements functional and phylogenetic facets of biodiversity. *Current Biology*, 32(9), 2093-2100. <https://doi.org/10.1016/j.cub.2022.03.009>
- Botella, C., Gaüzère, P., O'Connor, L., Ohlmann, M., Renaud, J., Dou, Y., ... & Thuiller, W. (2024). Land-use intensity influences European tetrapod food webs. *Global change biology*, 30(2), e17167. <https://doi.org/10.1111/gcb.17167>
- Botella, C., Marchante, H., Celesti-Gradow, L., Brundu, G., Geerts, S., Ramirez-Albores, J., Gonzalez-Moreno, P., Ritter, M. & Richardson, D.M. (2023) The global distribution of Acacia. In *Wattles: Australian Acacia species around the world*. CABI. <https://doi.org/10.1079/9781800622197.0009>
- Picek, L., Botella, C., Servajean, M., Leblanc, C., Palard, R., Larcher, T., ... & Joly, A. (2024). Geoplant: Spatial plant species prediction dataset. *Advances in Neural Information Processing Systems*, 37, 126653-126676. <https://doi.org/10.52202/079017-4023>
- González Moreno, P., Anđelković, A. A., Adriaens, T., Botella, C., Demetriou, J., Bastos, R., ... & Pocock, M. J. (2025). Citizen science platforms can effectively support early detection of invasive alien species according to species traits. *People and Nature*, 7(1), 278-294. <https://doi.org/10.1002/pan3.10767>
- Ryckewaert, M., Marcos, D., Botella, C., Servajean, M., Bonnet, P., & Joly, A. (2026). Applying the maximum entropy principle to neural networks enhances multi species distribution models. *Methods in Ecology and Evolution*. <https://doi.org/10.1111/2041-210x.70262>

## Supervisions

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- **PostDocs:** Maxime Ryckewaert (2023-2025), Lukas Picek (2024-2025), Vincent Espitalier (2023-2024).
- **PhD students:** Raphael Benerradi (2024-2027), Pablo Ubilla Pavez (2025-2028).
- **Master students:** Benjamin Deneu (M2, 2018), Isabella De Beer (2022-2023), Michele Ter Hurne (Master, 2022-2023), Wesley Douglas (Master, 2022-2023), Louis Aury (M2, 2024), Marion CANN (M1, 2025), Massilya Raked (M1, 2025).

## Participation in international projects

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- MAMBO Horizon Europe project (2023-2026)
- B3 Horizon Europe project (2023-2026)
- PRISMA project funded by Agencia Estatal de Investigación (2024-2028)
- BEAGLE Horizon Europe project (2026-2030)

## Other academic activities

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- Scientific animation: Member of the Cisstats network organizing committee, Organizer of the deepSDM symposium in 2025, Animator of the Inria Iroko team monthly seminars, co-animator of the DirtySDMeeting group in Montpellier for species distribution modeling with heterogeneous data since 2026.
- Referent of the comity for sustainable development (CLDD) for the Inria branch at the University of Montpellier and supervisor of CO2 emissions assessments since 2024.
- Member of the scientific council at the Conservatoire d'Espaces Naturels (CEN) Occitanie since 2025.
- Advisory board member for the GAIA-Predict project since 2024.
- Regular reviewer for journals in ecology and its statistical, mathematical and computational interfaces (e.g. Nature Communications, Methods in Ecology and Evolution, Ecological Informatics, STOTEN, Biological Conservation).
- Organiser of the GeoLifeCLEF campaigns for the open evaluation of Species Distribution Models in 2018, 2019, 2023 and 2024.