

David García-Callejas

CONTACT INFORMATION	University of Canterbury School of Biological Sciences, Christchurch 8140 (New Zealand) +34 620456021 david.garcia.callejas@gmail.com	ORCID: 0000-0001-6982-476X Google Scholar Publons GitHub Twitter Personal Website
RESEARCH INTERESTS	I am a community ecologist broadly interested in understanding the structure and dynamics of ecological assemblages, their spatiotemporal patterns, and their response to global change drivers. In particular, I study the role of biotic interactions in shaping local and regional patterns of diversity and coexistence. In approaching these themes, I aim to bridge theoretical approaches to fundamental questions with field experiments and observations.	
CURRENT APPOINTMENTS	Postdoctoral researcher , University of Canterbury and Landcare Research New Zealand November 2021 to present	
PREVIOUS APPOINTMENTS	Postdoctoral researcher , University of Cadiz February 2020 to September 2021 Postdoctoral researcher , EBD-CSIC January 2019 to November 2019 Doctoral researcher , CREAM-UAB September 2014 to November 2018 Research technician , Imperial College January 2014 to August 2014 Research technician , University of Évora March 2013 to January 2014 Research technician , CREAM September 2012 to February 2013	
EDUCATION	Ph.D. in Terrestrial Ecology , Autonomous University of Barcelona 11/2018 <ul style="list-style-type: none">• Thesis Title: <i>Structure and dynamics of ecological networks with multiple interaction types</i>• Advisors: Dr. Miguel B. Araújo, Dr. Roberto Molowny-Horas• Qualification: <i>Magna Cum Laude</i> with International Doctorate Distinction.• Associated stays: Integrative Ecology Lab, Univ. of Sherbrooke (Quebec), 09–12/2017, supervised by Prof. Dominique Gravel• Thesis document and LaTeX template available at: https://github.com/garciacallejas/Thesis M.Sc. in Terrestrial Ecology , Autonomous University of Barcelona 09/2012 <ul style="list-style-type: none">• Thesis Title: <i>Projecting the distribution and abundance of Mediterranean tree species under climate change: a demographic approach</i>• Advisors: Prof. Javier Retana, Dr. Roberto Molowny-Horas• 60 ECTS B.S. in Environmental Sciences , University of Alcala 07/2010 <ul style="list-style-type: none">• 300 ECTS B.S. in Computer Science , University of Granada 09/2006 <ul style="list-style-type: none">• 180 ECTS	
REFEREED JOURNAL PUBLICATIONS	[1] Mestre, F., Gravel, D., García-Callejas, D. , Pinto-Cruz, C., Matías, M.G., Araújo, M.B. 2022. Disentangling environment food web relationships: a review with guidelines. <i>Basic and Applied Ecology</i> , 61:102-115. doi:10.1016/j.baae.2022.03.011	

- [2] **García-Callejas, D.**, Bartomeus, I., Godoy, O., 2021. The spatial configuration of biotic interactions shapes coexistence-area relationships in an annual plant community. *Nature Communications*, 12:6192. doi:10.1038/s41467-021-26487-2
- [3] Civantos-González, I., Algarra, F. J., **García-Callejas, D.**, Galeano, J., Godoy, O., Bartomeus, I. Fine scale prediction of ecological community composition using a two-step sequential machine learning ensemble. *Plos Computational Biology*, 17(12):e1008906. doi:10.1371/journal.pcbi.1008906
- [4] Taheri, S., **García-Callejas, D.**, Araújo, M.B., 2021. Discriminating climate, land-cover and random effects on species range dynamics. *Global Change Biology*, 27:1306-1317. doi:10.1111/gcb.15483
- [5] **García-Callejas, D.**, Godoy, O., Bartomeus, I. 2020. cxr: A toolbox for modelling species coexistence in R. *Methods in Ecology and Evolution*, 11:1221-1226. doi:10.1111/2041-210X.13443
Associated R package: <https://github.com/RadicalCommEcol/cxr>
- [6] **García-Callejas, D.**, De la Cruz Rot, M. 2020. Cómo crear paquetes de R. *Ecosistemas*, 29:1948. doi:10.7818/ECOS.1948
- [7] **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B., Gravel, D. 2019. Spatial cascades in communities connected by dispersal and foraging. *Ecology*, 100:e02820. doi:10.1002/ecy.2820
- [8] **García-Callejas, D.**, Torres, A. 2019. Restauración de interacciones ecológicas: medidas y consecuencias a escala de comunidad. *Ecosistemas*, 28:42-49. doi:10.7818/ECOS.1748
- [9] **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B. 2018. The effect of multiple biotic interaction types on species persistence. *Ecology*, 99:2327-2337. doi:10.1002/ecy.2465
- [10] **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B. 2018. Multiple interactions networks: towards more realistic descriptions of the web of life. *Oikos*, 127:5-22. doi:10.1111/oik.04428 (Editor's choice)
- [11] **García-Callejas, D.**, Molowny-Horas, R., Retana, J. 2017. Projecting the distribution and abundance of Mediterranean tree species under climate change: a demographic approach. *Journal of Plant Ecology*, 10:731-743. doi:10.1093/jpe/rtw081 (Editor's choice)
- [12] **García-Callejas, D.**, Araújo, M.B. 2016. The effects of model and data complexity on predictions from species distributions models. *Ecological Modelling*, 326:4-12. doi:10.1016/j.ecolmodel.2015.06.002
- [13] Matias, M., Gravel, D., Chase, J.M., Cruz, C., **García-Callejas, D.**, Gilbert, T.P., Leibold, M., Pereira, C.L., Ramos, C., Raposeiro, P.M., Rozenfeld, A., Sroczynska, K., Vieites, D., Woodward, G., Araújo, M.B. PondNet – Towards a global network of experiments on the effects of climate change on aquatic ecosystems. *Manuscript under review*.

- [14] Allen-Perkins, A., Hurtado, M., **García-Callejas, D.**, Godoy, O., Bartomeus, I. Individual-based plant-pollinator networks unveils pollen flow dynamics and plant reproductive success. *Manuscript under review*. Preprint available: *bioRxiv*, 2021.04.23.441120
doi:10.1101/2021.04.23.441120
- [15] **García-Callejas, D.**, Godoy, O., Bartomeus, I. Stability of multitrophic communities: more than the sum of its parts. *In preparation*.
- [16] Leles, S., Almaraz, P., **García-Callejas, D.**, Godoy, O. Mixotrophy and the stability of ecological communities. *In preparation*.
- [17] **García-Callejas, D.** On the variability of Species Abundance Distributions with trophic guild and community structure. Preprint available: *bioRxiv*, 289348
doi:10.1101/289348
- CONFERENCE TALKS/POSTERS
(AS FIRST AUTHOR)
- [18] Talk: **García-Callejas, D.**, Godoy, O, Hurtado, M., Buche, L., Lanuza, J.B., Allen-Perkins, A., Bartomeus, I. Stability of multi-trophic communities: more than the sum of its parts. In: *AET 2021 Meeting*, 18-21/10/2021.
- [19] Talk: **García-Callejas, D.**, Bartomeus, I., Godoy, O. Species-area relationships emerge from multiple coexistence mechanisms. In: *BES 2020 Meeting*, 14-18/12/2020.
- [20] Talk: **García-Callejas, D.**, Bartomeus, I., Hurtado, M., Godoy, O. Variability of an ecological multilayer network across space and interaction types. In: *NetSci conference*, 20-24/08/2020.
- [21] Talk: **García-Callejas, D.**, Godoy, O., Bartomeus, I. cxr: a toolbox for modelling species interactions and coexistence in R. In: *BES Quantitative Ecology Meeting*, 27-30/07/2020.
- [22] Talk: **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B., Gravel, D. Spatial cascades in networks connected by dispersal and foraging. In: *SIBECOL*, Barcelona, 04-07/02/2019.
- [23] Talk: **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B. Species persistence in networks with multiple interaction types. In: *NetSci conference*, Paris, 11-14/06/2018.
- [24] Talk: **García-Callejas, D.** The influence of trophic position on Species Abundance Distributions. In: *Ecology across borders*, Ghent, 11-14/12/2017.
- [25] Poster: **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B. Multiple interactions networks: towards more realistic descriptions of the web of life. In: *Community Ecology for the 21st Century*, Évora, 17-19/10/2016. (Best poster award)
- INVITED TALKS
- [26] **García-Callejas, D.** Towards understanding how species coexist in complex ecological communities. In: *Doñana Biological Station*, Sevilla, 03/03/2022.
- [27] **García-Callejas, D.**, Molowny-Horas, R., Araújo, M.B. Multiple interactions networks in community ecology: towards more realistic representations of the web of life. In: *Centre for Advanced Studies*, Blanes, 10/01/2019.
- [28] **García-Callejas, D.**, Molowny-Horas, R., Retana, J. Distribution and abundance of tree species: A spatially explicit model for Peninsular Spain. In: *Forest sciences centre of Catalonia*, Solsona, 10/12/2012.

TEACHING EXPERIENCE	<p>Centro de Estudios Andaluces 2020-2022</p> <ul style="list-style-type: none"> • Introduction to R <ul style="list-style-type: none"> • Duration: 16h each year • Materials: Github repository • Reproducible analyses with R and RMarkdown <ul style="list-style-type: none"> • Duration: 16h each year • Materials: Github repository <p>Universidad de Huelva 2020-2022</p> <ul style="list-style-type: none"> • Advanced Statistical Methods for Conservation and Biodiversity (M.Sc. in Biodiversity) <ul style="list-style-type: none"> • Duration: 5h in 2020, 20h in 2021, 25h in 2022 • Materials: Github repository <p>Universitat Autònoma de Barcelona 2015-2018</p> <p><i>Field/practical courses</i></p> <ul style="list-style-type: none"> • Ecology (B.S. in Environmental Sciences) - 62h • Ecology (B.S. in Biology) - 15h • Analysis and of environmental cartography (B.S. in Env. Biology) - 19h • Analysis and cartography of vegetation (B.S. in Biology) - 23h <p><i>Theoretical courses</i></p> <ul style="list-style-type: none"> • Statistics and environmental modelling (M.Sc. in Terrestrial Ecology) - 2h • Conservation Biology (B.S. in Env. Biology) - 12h • Forest Ecology (B.S. in Env. Biology) - 1h <p>Materials: https://garciacallejas.github.io/teaching/teaching/</p> <p>CREAF 2018</p> <p><i>Seminar: Introduction to Latex and Zotero</i></p> <ul style="list-style-type: none"> • 5h in 2 sessions <p>Rui Nabeiro Biodiversity Chair 2013</p> <p><i>Course: Introduction to the R Language</i></p> <ul style="list-style-type: none"> • 12h in 3 sessions 	
STUDENT SUPERVISION	<p>M.Sc. Theses:</p> <ul style="list-style-type: none"> • 2021 - David Diaz Mulero - <i>Diversity and structure of ecological networks in agricultural habitats</i> - Pablo de Olavide University (Sevilla, Spain) - co-supervised with Dr. Ignasi Bartomeus. • 2021 - Laura Buonafede - <i>Ecological filtering of butterfly species associations by urban environments</i> - University of Firenze/CREAF - co-supervised with Dr. Yolanda Melero. 	
PROJECTS	<p>As Principal Investigator:</p> <ul style="list-style-type: none"> • 2021 - NETMAP: Advancing the biogeography of interaction networks - Funded by the Spanish Association for Terrestrial Ecology - 2500€ 	
AWARDS	<ul style="list-style-type: none"> • Special Award for Doctoral Studies, 2018/19. Autonomous University of Barcelona, Spain. • FPU Visiting researcher scholarship, 2017. Science and Education Ministry, Spain. • FPU Ph.D. scholarship programme, 2014–2018. Science and Education Ministry, Spain. • M.Sc. scholarship programme, 2011–2012. “Fundación Obra Social La Caixa”, Spain. • International scholarship programme, 2010. “Fundación Bancaja”, Spain. 	

- ORGANIZATIONAL WORK Organizing Committees:
- 1st Joint AEET-SFE2 Conference for Early Career Scientists - 09-11 June 2021 (full program [here](#))
 - 1st AEET Festival of Ecology - 18-20 May 2022 (full program [here](#))
- LANGUAGES
- First Language: Spanish.
 - English: Proficient reading, speaking, writing.
 - Catalan: Proficient reading, basic speaking and writing.
 - Portuguese, Italian: Intermediate reading, basic speaking and writing.
- SOFTWARE SKILLS
- Proficiency in R (statistical analyses, spatial and temporal analyses, data management and visualization, dynamic models, package development).
 - Knowledge of Unix shell, software parallelization in HPC.
 - Intermediate user of C++.
 - Git user, expertise in Latex (e.g. developed an open template for Ph.D. thesis, available at <https://github.com/garciacallejas/Thesis>).
 - Familiarity with QGIS and open source graphics software (GIMP, InkScape).
- EVALUATION AND REFEREE SERVICE
- Evaluator for the United States' National Science Foundation Grants Program (2020).
 - Reviewer for scientific journals (since 2016): Global Ecology and Biogeography, Ecography, Journal of Ecology, Nature Ecology and Evolution, mSystems, Functional Ecology, Oikos, Ecology and Evolution, Journal of Animal Ecology, Journal of Environmental Informatics, Ecology Letters.
- SELECTED MEDIA COVERAGE
- Biodiversity in Doñana (in Spanish): [Interview in Youtube](#)
 - News outlets on restoring species interactions (in Spanish): [1] [2] [3] [4] [5] [6]
- REFERENCES
- Dr. Ignasi Bartomeus - Doñana Biological Station - nacho.bartomeus@gmail.com
 - Dr. Oscar Godoy - University of Cádiz - oscar.godoy@uca.es
 - Prof. Miguel Araújo - National Museum of Natural History, Spain - maraujo@mncn.csic.es