

Matthias Grenié

Postdoctoral Researcher

Curriculum Vitae
October 2022

📍 German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig
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Scientific Education

2016-2020	PhD in Ecology Montpellier, France <ul style="list-style-type: none">➤ Supervised by Dr. Cyrille Violle and Pr. François Munoz.➤ PhD title: 'Outside the norm: deviation from ecological optimality and functional originality'	CEFE / Montpellier University
2013-2015	MSc. in General Biology Lyon, France	École Normale Supérieure de Lyon
2012-2013	Bsc. in General Biology Lyon, France	École Normale Supérieure de Lyon

Academic Experience

Oct. 2020-now	Postdoctoral Researcher Leipzig, Germany <ul style="list-style-type: none">➤ Working with Dr. Marten Winter on the functional biogeography of alien plants	German Center for Integrative Biodiversity Research (iDiv) / Leipzig University
2016-2020	PhD Student Montpellier, France	Montpellier University
Feb. 2015-June 2015	Master Intern Kourou, French Guiana, France <ul style="list-style-type: none">➤ Supervised by Dr. Bruno Hérault on intraspecific variability in tropical trees growth in function of functional traits	EcoFOG
Sept. 2014-Dec. 2014	Master Intern Montpellier, France <ul style="list-style-type: none">➤ Supervised by Dr. Ophélie Ronce on matrix population models	ISEM, University of Montpellier
Feb. 2014-July 2014	Master Intern Bloomington, IN, USA <ul style="list-style-type: none">➤ Supervised by Dr. Jean-François Goût in Michael Lynch's lab on trait motifs in the <i>Paramecium</i> complex	Indiana University

Scientific Supervision

Apr. 2018 - May 2018	Supervised First year Master's Student Charlotte Guérineau Internship on functional rarity of diverse taxonomic groups (birds, plants, fishes, and soil bacteria) over France
Apr. 2019 - June 2019	Co-supervised First year Master's Student Nathan Mazet Internship on global dietary strategies for birds, main supervisor: Jean-Yves Barnagaud

Scientific Service

2017-now	Reviewer for Scientific Journals (see Publons profile) For <i>Ecology Letters</i> , <i>Functional Ecology</i> , <i>Biological Reviews</i> , <i>PeerJ</i> , <i>Biological Conservation</i> , and <i>Journal of Biogeography</i>
2022-now	Software reviewer for rOpenSci For the npi package
2022-now	Post-doctoral researchers representative iDiv Council , an advisory council of iDiv

- 2021-now **Organizer of the biweekly sDiv lab meetings**
sDiv team
- 2022-now **Member of PhD Advisory Committee of *Rachel Souza Fereira***
- 2018-2020 **Representative of PhD students in the CEFE lab council**
CEFE lab council, the main governing body of the lab
- 2018 **Co-organizer of half-day workshop on Open Access Practices**
An event on how to make your articles accessible, organized for ~50 people of the CEFE in Montpellier
- 2017 **Co-organizer of Junior Conference 'Models in Ecology and Evolution'**
A junior conference organized yearly in Montpellier with ~100 people attending from Masters to Post-docs

Scientific Projects

- 2017-now **Functional Rarity in Ecology and Evolution group (FREE)** CESAB (French Biodiversity Synthesis Centre)
 ➤ Core member of the group as the developer of the *funrar* package that computes functional rarity indices. Author of several core papers for the group. Led 3 papers attached to the work of the group.
- 2021-now **Global Naturalized Alien Flora (GloNAF)** GloNAF
 ➤ Contributor to the regular meetings. Currently leading one article for the group.
- 2022-now **IMPACTS group** CESAB
 ➤ Scientific Contributor to the group. Co-head of data management for the group. First meeting November 2022.

Scientific Contributions

📄 11 published articles. 📄 323 citations (Google Scholar). 📄 h-index 10 (Google Scholar). 📄 6 R packages

Publications

- Gaüzère, P., Denelle, P., Fournier, B., **Grenié, M.**, Delalandre, L., Münkemüller, T., Munoz, F., Violle, C., & Thuiller, W. (2022). The Functional Trait Distinctiveness of Plant Species Is Scale Dependent. *Ecography*, in press.
- Grenié, M.**, Berti, E., Carvajal-Quintero, J., Dädlow, G. M. L., Sagouis, A., & Winter, M. (2022). Harmonizing Taxon Names in Biodiversity Data: A Review of Tools, Databases and Best Practices. *Methods in Ecology and Evolution*, n/a(n/a). <https://doi.org/10.1111/2041-210X.13802>
- Mouillot, D., Loiseau, N., **Grenié, M.**, Algar, A. C., Allegra, M., Cadotte, M. W., Casajus, N., Denelle, P., Guéguen, M., Maire, A., Maitner, B., ... Auber, A. (2021). The Dimensionality and Structure of Species Trait Spaces. *Ecology Letters*, 24(9), 1988–2009. <https://doi.org/10.1111/ele.13778>
- Grenié, M.**, Violle, C., & Munoz, F. (2020). Is Prediction of Species Richness from Stacked Species Distribution Models Biased by Habitat Saturation? *Ecological Indicators*, 111, 105970. <https://doi.org/10.1016/j.ecolind.2019.105970>
- Loiseau, N., Mouquet, N., Casajus, N., **Grenié, M.**, Guéguen, M., Maitner, B., Mouillot, D., Ostling, A., Renaud, J., Tucker, C., Velez, L., ... Violle, C. (2020). Global Distribution and Conservation Status of Ecologically Rare Mammal and Bird Species. *Nature Communications*, 11(1), 5071. <https://doi.org/10.1038/s41467-020-18779-w>
- Barnagaud, J.-Y., Mazet, N., Munoz, F., **Grenié, M.**, Denelle, P., Sobral, M., Kissling, W. D., Şekercioğlu, Ç. H., & Violle, C. (2019). Functional Biogeography of Dietary Strategies in Birds. *Global Ecology and Biogeography*, 28(7), 1004–1017. <https://doi.org/10.1111/geb.12910>
- Joffard, N., Massol, F., **Grenié, M.**, Montgelard, C., & Schatz, B. (2019). Effect of Pollination Strategy, Phylogeny and Distribution on Pollination Niches of Euro-Mediterranean Orchids. *Journal of Ecology*, 107(1), 478–490. <https://doi.org/10.1111/1365-2745.13013>
- Grenié, M.**, Mouillot, D., Villéger, S., Denelle, P., Tucker, C. M., Munoz, F., & Violle, C. (2018). Functional Rarity of Coral Reef Fishes at the Global Scale: Hotspots and Challenges for Conservation. *Biological Conservation*, 226, 288–299. <https://doi.org/10.1016/j.biocon.2018.08.011>
- Munoz, F., **Grenié, M.**, Denelle, P., Taudière, A., Laroche, F., Tucker, C., & Violle, C. (2018). Ecolottery: Simulating and Assessing Community Assembly with Environmental Filtering and Neutral Dynamics in R. *Methods in Ecology and Evolution*, 9(3), 693–703. <https://doi.org/10.1111/2041-210X.12918>
- Grenié, M.**, Denelle, P., Tucker, C. M., Munoz, F., & Violle, C. (2017). *Funrar*: An R Package to Characterize Functional Rarity. *Diversity and Distributions*, 23(12), 1365–1371. <https://doi.org/10.1111/ddi.12629>
- Violle, C., Thuiller, W., Mouquet, N., Munoz, F., Kraft, N. J. B., Cadotte, M. W., Livingstone, S. W., **Grenié, M.**, & Mouillot, D. (2017). A Common Toolbox to Understand, Monitor or Manage Rarity? A Response to Carmona et Al. *Trends in Ecology & Evolution*, 32(12), 891–893. <https://doi.org/10.1016/j.tree.2017.10.001>

Preprints

1. **Grenié, M.**, & Gruson, H. (2022). *Fundiversity: A Modular R Package to Compute Functional Diversity Indices*. <https://doi.org/10.32942/osf.io/dg7hw> – Submitted to *Ecography*.
2. Munoz, F., Klausmeier, C., . . . , **Grenié, M.**, Loiseau, N., Mahaut, L., Maire, A., Mouillot, D., Violle, C., & Kraft, N. (2022). *The Ecological Causes of Functional Distinctiveness in Communities*. <https://doi.org/10.22541/au.166488862.28762630/v1>

Other Submitted Manuscripts

1. Cutts, V., Hanz, D., Barajas-Barbosa, M., Schrod, F., Steinbauer, M., Beierkuhnlein, C., Denelle, P., Fernández-Palacios, J. M., Gaüzère, P., **Grenié, M.**, Irl, S., . . . Algar, A. (2022). *Links to rare climates do not translate into distinct traits for island endemics*.
2. Jurburg, S. D., Buscot, F., Chatzinotas, A., Chaudhari, N. M., Clark, A. T., **Grenié, M.**, Garbowski, M., Hom, E. F. Y., Karakoç, C., Marr, S., Neumann, S., . . . Heintz-Buschart, A. (2022). *Revisiting multivariate molecular data: a community ecology perspective*.

R packages

- **funrar** (main creator and maintainer)
computes functional originality indices central for CESAB FREE group analyses
[published paper](#) – [CRAN](#) – [GitHub](#)
- **ecolottery** (co-creator)
simulates community assembly processes cleverly with both niche and neutral processes
[published paper](#) – [CRAN](#) – [GitHub](#)
- **fundiversity** (co-creator and maintainer)
a fast and modular package to compute functional diversity indices
[online preprint](#) – [CRAN](#) – [GitHub](#)
- **rromeo** (co-creator and maintainer)
accesses the [Sherpa/RoMEO API](#) that indexes the open access policies of journals
[published by rOpenSci](#) – [CRAN](#) – [GitHub](#)
- **funbiogeo** (co-creator and maintainer)
helps create functional biogeography workflows, developed in the context of the FREE CESAB group
[GitHub](#)
- **rtaxref** (creator and maintainer)
accesses the French Taxonomic Referential (TAXREF) API
[GitHub](#)
- Significant contributions to other packages: [taxize](#), [ggfortify](#), and [traitdataform](#)

Conference Proceedings

1. **Grenié, M.**, Berti, E., Carvajal-Quintero, J., Winter, M., & Sagouis, A. (2021). Matching Species Names Across Biodiversity Databases: Sources, Tools, Pitfalls and Best Practices for Taxonomic Harmonization. *Biodiversity Information Science and Standards*, 5, e75359. <https://doi.org/10.3897/biss.5.75359>

Invited Talks

- December 2021 **Holger Kreft's regular lab seminar** on 'Navigating the landscape of taxonomic harmonization'
University of Göttingen
- May 2022 **Invited talk at the 3rd meeting of Data to Knowledge in Agronomy and Biodiversity (D2KAB) on 'Taxonomic Databases of Plants and Animals'**
Paris/Online

Talks

5 last given talks: BES Macro 2022, iDiv Conf, GloNAF meeting, GfÖ 2021, BES Macro 2021.

Blogposts

1. **Grenié, M.**, Berti, E., Carvajal-Quintero, J., Dädlow, G. M. L., Sagouis, A., & Winter, M. (2022). Best Practices for Taxonomic Harmonization, an Overlooked yet Crucial Step in Biodiversity Analyses. Retrieved from <https://methodsblog.com/2022/03/02/best-practices-for-taxonomic-harmonization-an-overlooked-yet-crucial-step-in-biodiversity-analyses/>
2. **Grenié, M.**, & Gruson, H. (2020). Community Captioning of rOpenSci Community Calls. Retrieved from <https://ropensci.org/blog/2020/07/15/subtitles/>
3. **Grenié, M.**, & Gruson, H. (2019). Access Publisher Copyright & Self-Archiving Policies via the 'SHERPA/RoMEO' API. Retrieved from <https://ropensci.org/blog/2019/06/04/rromeo/>

Teaching Experience

I taught 100+ hours on Ecology, Biodiversity Statistics, and R programming from 2nd year of Bachelor to PhD students (detail below).

I am a certified [Carpentries](#) instructor, focusing on **R programming** and **Data Visualization**.

I also founded the R User Group at the Center for Functional and Evolutionary Ecology in Montpellier. There, I organized regular 1h meet-ups on various R topics (plotting with `ggplot2`, mapping with `sf`, project organization with RStudio, workflow organization with `drake`, parallelization with `future`).

Teaching detail

Course Name	Year(s)	Level	Total time
Descriptive Statistics with R (UM)	2016/2017	Bachelor's (2nd yr)	50h
Functional Biogeography with R (UM, material)	2017/2018	Master's (2nd yr)	8h
Guest Lecture on Biodiversity Facets (UL)	2021/2022	Master's (1st yr)	4h
Biodiversity Facets with R (UL, material)	2021/2022	Master's (1st yr)	12h
Group project on Biodiversity Facets (UL)	2021	Master's (1st yr)	20h
Introduction to git and GitHub (UL/iDiv, material)	2022	Masters, PhD students, and postdocs	10h

UM: University of Montpellier; UL: University of Leipzig






Skills

Languages

Level estimates are given following the [Common European Framework of Reference for Languages: Learning, Teaching, Assessment \(CEFR\)](#)

French [native speaker]; English [C2, fluent speaker]; Spanish [B1-B2]; German [A2]; Chinese [A2-B1]; Japanese [A2]

Programming languages

-  **R** language • Best Package Development Practices (test that unit tests, pkgdown website, Continuous Integration/Continuous Deployment, submission to CRAN) • data visualization (advanced `ggplot2` and extension packages) • spatial data manipulation [`terra` rasters, `sf` vectors, and interactions]
-  **SQL** interaction with databases • high-performance query • interaction with R
-  **High Performance Computing** job submission on SLURM/SGE • complex array jobs running
- **git** version control • git flow framework • collaborative development through  GitHub
- Basic knowledge of  **Python** and **Julia**

Other

Digital Photography, Film Photography, Hiking