

Dr. Génin Alexandre

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RESEARCH POSITIONS

- 22/03/2021 onward – **Marie Skłodowska-Curie fellow.** University of Utrecht, Netherlands and Estación Costera de Investigaciones Marinas (Pontificia Univ. Católica, Chile)
- Principal investigator for the INDECOSTAB project (indecostab.eu) on developing novel theory to understand the link between the spatial structure of coral communities and their resilience at Easter Island (Chile)
- 01/03/2019 – **Research associate at University of Montpellier.**
15/12/2020
- Student supervision
- Assistance and training of researchers for software development (e.g. in population genetics) and statistical analyses (e.g. spatial pattern analyses)
- Field work (2 months), including planning, logistics and crew supervision (3 participants)
- 01/09/2015 – **PhD fellow at University of Montpellier – *Ecological Interaction Networks, Stability and Resilience of Ecosystems*.** Supervised by Dr. Sonia Kéfi
01/11/2018
- Ecological modelling of grassland systems, including spatially-explicit based on cellular automata
- Development of eco-informatics tools to detect transitions in ecosystems, most notably the R package *spatialwarnings* maintained on CRAN
- Statistical analyses of plant spatial patterns
- Field work, including planning, logistics and crew supervision (6 participants)
- 01/09/2014 – **Research associate at Trinity College, Dublin (Ireland) and University of**
01/07/2015 **Montpellier (France) – *Modelling the effect of non-trophic interactions in coastal communities*.** In collaboration with Dr. Ian Donohue and Dr. Sonia Kéfi
- Ecological modelling of inter-tidal ecosystems (using ordinary differential equations, ODE)
- 01/03/2014 – **Trainee at University of California, Berkeley (USA) – *Identifying ecological***
01/06/2014 ***transitions in meadow plant communities of Sierra Nevada, California*.** Supervised by Dr. Eric Berlow
- 01/09/2013 – **Trainee at LECA Grenoble (Alpine Ecology Laboratory, France) – *Variations of***
01/01/2014 ***biodiversity patterns in permafrost DNA*** Supervised by Dr. Loïc Chalmandrier and Dr. Wilfried Thuiller
- 01/09/2012 – **Research associate at CEBC (Chizé Center for Biological Studies, France) –**
01/09/2013 ***Foraging behaviour of Southern Elephant Seals through the use of acoustic recorders*.** Supervised by Dr. Christophe Guinet and Dr M.P. Etienne
- 01/03/2012 – **Trainee at WERC, USGS (California, USA) – *Spatial heterogeneity and soil moisture***
01/08/2012 ***in meadow plant communities*.** Supervised by Dr. Eric Berlow

EDUCATION

- 2015-2018 **PhD in Biodiversity, Ecology and Environment, University of Montpellier, France**
2012-2015 **Master Biosciences** – Ecole Normale Supérieure (ENS) de Lyon, France
2010-2012 **BSc. (Licence) in Earth Sciences** - Ecole Normale Supérieure (ENS) de Lyon, France
2008-2010 Advanced preparatory classes. Biology, Chemistry, Physics and Earth Sciences. Lycée du Parc - Lyon, France

PUBLICATIONS – BOOKS AND BOOK CHAPTERS

- 2023 **A. Génin**. 2023 Quand la nature s’effondre. Comprendre les transitions abruptes dans les écosystèmes. Editions Matériologiques. 132 p.
- 2023 S. A. Navarrete, C. M. Aiken, M. I. Ávila-Thieme, D. Valencia, **A. Génin**, S. Gelcich. 2023 Common Oversights in the Design and Monitoring of Ecosystem-Based Management Plans and the Siting of Marine Protected Areas, in Island Ecosystems- Challenges to Sustainability" Ed. Springer.

PUBLICATIONS – ARTICLES IN PEER-REVIEWED JOURNALS

- in revision* [12] **A. Génin**, S. A. Navarrete, A. Garcia-Mayor, E. A. Wieters. Emergent spatial patterns can indicate upcoming regime shifts in a realistic model of coral community. **The American Naturalist**
- 2023 [11] S. Navarrete, M. I. Ávila-Thieme, D. Valencia, **A. Génin**, S. Gelcich. 2022. Monitoring the Fabric of Nature: Using Allometric Trophic Network models and observations to assess policy effects on biodiversity. **Proceedings of the Royal Society B**
- 2022 [10] G. Martin, A. Courtial, **A. Génin**, H. Ramone, T. Dutoit. 2022. Why Grazing and Soil Matter for Dry Grassland Diversity: New Insights from Multigroup Structural Equation Modeling of Micro-Patterns. **Frontiers in Ecology and Evolution**
- 2021 [9] **A. Génin**, T. Dutoit, A. Danet, A. le Priol and S. Kéfi. 2021 Grazing and the vanishing complexity of plant association networks in grasslands **Oikos**. 130 (4): 541–52.
- 2020 [8] **A. Génin**, S. R. Lee, E. L. Berlow, S. M. Ostoja, and S. Kéfi. 2020. “Mapping Hotspots of Potential Ecosystem Fragility Using Commonly Available Spatial Data.” **Biological Conservation** 241 (January): 108388.
- 2019 [7] L. Chalmandrier, J. Pansu, L. Zinger, F. Boyer, E. Coissac, **A. Génin**, L. Gielly, et al. 2019. Environmental and Biotic Drivers of Soil Microbial B-diversity across Spatial and Phylogenetic Scales. **Ecography**, October.
- 2018 [6] **A. Génin**, S. Majumder, S. Sankaran, A. Danet, V. Guttal, F. D. Schneider, and S. Kéfi. 2018. “Monitoring Ecosystem Degradation Using Spatial Data and the R Package ‘Spatialwarnings.’” **Methods in Ecology and Evolution**, July.
- [5] **A. Génin**, S. Majumder, S. Sankaran, F. D. Schneider, A. Danet, M. Berdugo, V. Guttal, and S. Kéfi. 2018. “Spatially Heterogeneous Stressors Can Alter the Performance of Indicators of Regime Shifts.” **Ecological Indicators**, February.
- 2017 [4] I. Donohue, P. Owen L. S. Kéfi, **A. Génin**, A. L. Jackson, Q. Yang, and N. E. O’Connor. 2017. “Loss of Predator Species, Not Intermediate Consumers, Triggers Rapid and Dramatic Extinction Cascades.” **Global Change Biology** 23 (8): 2962–72.
- [3] S. R. Lee, E. L. Berlow, S. M. Ostoja, M. L. Brooks, **A. Génin**, J. R. Matchett, and S. C. Hart. 2017. “A Multi-Scale Evaluation of Pack Stock Effects on Subalpine Meadow Plant Communities in the Sierra Nevada.” **PLOS ONE** 12 (6): e0178536.
- 2015 [2] **A. Génin**, G. Richard, J. Jouma’a, B. Picard, N. El Ksabi, J. Vacquié-Garcia, and C. Guinet.

2015. “Characterization of Postdive Recovery Using Sound Recordings and Its Relationship to Dive Duration, Exertion, and Foraging Effort of Southern Elephant Seals (*Mirounga Leonina*).” *Marine Mammal Science* 31 (4): 1452–70.

2014 [1] G. Richard, J. Vacquie-Garcia, J. Jouma’a, B. Picard, **A. Génin**, J. P. Y. Arnould, F. Bailleul, and C. Guinet. 2014. “Variation in Body Condition during the Post-Moult Foraging Trip of Southern Elephant Seals and Its Consequences on Diving Behaviour.” *Journal of Experimental Biology* 217 (14): 2609–19.

GRANTED FUNDING AND AWARDS

- 2021 - **Marie Skłodowska-Curie Individual Fellowship** (€200 000) attributed to the research project: *Developing and testing spatial indicators of ecosystem stability for subtidal seascapes*.
- 2019 - **Percy Sladen Memorial Fund Grant** (€690) attributed to the research project: *Ecological interactions and vulnerability of plant communities in Sierra-Nevada (California) subalpine meadows*.
- **Paris Institute for Complex Systems award**, co-1st prize (€1 000), attributed for outstanding dissertation work in complex system sciences
- 2015 - **PhD fellowship** (approx. € 50 000), covering the full duration of a PhD program
- 2010 - **Ecole Normale Supérieure fellowship** (approx. € 60 000), covering undergraduate and Master’s-level programs

TEACHING AND SUPERVISION EXPERIENCE

- Student supervision Supervision of multiple undergraduate-level trainees (2 months each) and master-level students (4-6 months projects).
- Teaching Approx 170h in total:
Functional Ecology (undergraduate level, 20h)
Statistics (undergraduate level, 15h)
Integrative Biology (undergraduate level, 128h)
R workshops for researchers, PhD and Master’s Students (approx. 20h)

RELEVANT SCIENTIFIC SKILLS AND ACHIEVEMENTS

- Peer-review Reviewer for *Oikos*, *Biological Conservation*, *Journal of Arid Environments*, *Ecology and Evolution*, *Proceedings B*, *Oecologia*, *Journal of Vegetation Science*
- Software development *Strong knowledge of scientific programming* (R, C++, Matlab), especially applied to data analysis, image and signal processing. Author of multiple R packages published on CRAN (e.g. *spatialwarnings*).
- Field work *Strong field work experience*: leader of 3 botanical field work campaigns (California x1, France x2, 10 months in total); deployment of data loggers on Elephant Seals (1.5 months); bird ringing (6 years of experience).
- Languages French: native speaker
English: fluent
Spanish: fluent