MACHON Nathalie

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Professional background:
1991-1995: PhD thesis, Université Paris-Sud Orsay: Genetic diversity of forest tree populations. The examples of elm and chestnut trees (Dir PH Gouyon).
1995-1996 : Post-doctorate : " Study of natural populations of *Arabidopsis thalianna* under high atmospheric CO2 " University Paris-Saclay
1996-2002 : Assistant professor at MNHN, Conservatoire Botanique National du Bassin Parisien
2001 : Accreditation for Research Supervision HDR, University of Paris-Saclay
2002-2005 : Assistant professor, UMR 7204 Conservation of Species, Restoration and Population Surveys
Since 2005 : Professor, UMR 7204 Center of Ecology and Conservation Sciences CESCO MHN/SU/CNRS

Membership of offices held in societies and professional bodies
2011-2020: Expert at the Flora Commission of the National Council for the Protection of Nature of the French Ministry of Ecology
Since 2011 : Elected at the National Council of the Universities section 67.
Since 2015 : Elected to the Scientific Council of the MNHN
Since 2018: Appointed to the Economic, Social and Environmental Council of the Region
of the Ile-de-France Region, representing the teaching and research organizations of the
region
2009 - 2019 : Responsible for the UNESCO Chair "Development, Biodiversity and
Development, Biodiversity and Territorial Planning", of the Master's degree of the National Museum of Natural History
Since 2016 : Director of the Doctoral School 227 " Sciences of nature and man,
ecology and evolution " MNHN, Sorbonne University.

Scientific production : Hindex = 39
- 78 articles published in WoS indexed journals with a total citations of 4489; i10 index 68; H-index 39: https://scholar.google.com/citations?hl=fr&user=jPJxaagAAAAJ&view_op=list_works&sortby=pubdate.
Full publication list available at: https://www.researchgate.net/profile/Nathalie-Machon

Five selected publications in the last five years:
1. Buron, M., E. Porcher, E. Fédoroff, L. Berrod, J. Vallet, O. Bardet, G. Martin, and N. Machon. 2024. Rapid declines in species diversity and occurrence of common plant species are related to nutrient availability and soil moisture in open habitats. *Journal of Vegetation Science* 35:e13316.
2. Louvet, A., C. Mantoux, and N. Machon. 2024. Assessing the extinction risk of the spontaneous flora in urban tree bases. *PLoS Computational Biology* 20:e1012191.
3. Louis-lucas, T., C. Clauzel, F. Mayrand, P. Clergeau, and N. Machon. 2022. Role of green roofs in urban connectivity, an exploratory approach using landscape graphs in the city of Paris, France. *Urban Forestry & Urban Greening* 78:127765.
4. Thierry, C., B. Pisanu, and N. Machon. 2022. Both landscape and local factors influence plant and hexapod communities of industrial water-abstraction sites. *Ecology and Evolution* 12:e8365.
5. Louvet, A., N. Machon, J.-B. Mihoub, and A. Robert. 2021. Detecting seed bank influence on plant metapopulation dynamics. *Methods in Ecology and Evolution* 12:655-664.

-11 articles in non-refereed journals
- 5 book chapters
- 6 books of popular science on urban ecology

- 29 supervisions of PhD students
- Responsible for Citizen Science Programs "Sauvages de ma rue", Vigie-flore and sTREEts of Vigie-Nature

Research Interests

As part of CESCO and the URBA team, my research aligns with our shared goal of advancing biodiversity conservation in urban environments. Our work focuses on understanding the dynamics of animal, plant, and microorganism communities within the urban matrix and their interactions with changing urban landscapes. We aim to provide actionable knowledge on ecological functioning at multiple scales, from soil systems to urban eco-geography, and to address key societal questions, such as the role of green and blue networks in the city of tomorrow. Through ecological modeling, long-term monitoring, and interdisciplinary collaborations, we explore functional ecological continuity, including the potential of green buildings and urban corridors. Our research also investigates the behaviors of plants and animals in urban habitats and evaluates urban planning strategies for preserving biodiversity and improving ecosystem services. By integrating ecology, geography, and urban planning, we contribute to designing sustainable cities that support both biodiversity and human well-being.

Recent External founding/ Projects

Partner in an ADEME-funded project: RECRE program on ecosystem services in schoolyards.
Partner in a European COST project: National coordinator for France in CA18201: ConservePlants, specifically in the "Floral Complexity" module, which involves building a large plant trait database.
Partner in the ISITE FUTURE project – UNIVERSITÉ GUSTAVE EIFFEL: URBANATURE – Knowledge and cultures of urban biodiversity (19th–21st century).
Lead researcher in the ATM BALFLUX project: Assessment of gene flow between populations of Heliconia in Martinique in relation to urbanization. 10 k€
2022-2026 ANR (French National Agency for Research) FLORES: Work Package leader. 130k€

25/02/07