Kilian Perrelet



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Skills

Molecular
- (e)DNA extraction, amplification, library preparation
- Primer design *in silico* and *in vitro*

Coding
- R, Python, Unix bash scripting, GIS (all advanced), PowerShell (basics)
- Bioinformatics for metabarcoding data

Language
- French (native)
- English (fluent)
- German (intermediate)

Teaching experience

2025 **Introduction to urban biodiversity**
Carleton University, CA
BSc level (guest lecture)

2023-2024 **Aquatic ecology**
Eawag, CH
MSc level (80 contact hours each year)

2022 **Programming in Python**
University of Zurich, CH
BSc level (110 contact hours)

2021 **Fundamental Biology**
University of Geneva, CH
BSc level (50 contact hours)

2020 **Animal biodiversity and systematics**
University of Geneva, CH
BSc level (50 contact hours)

Education

2021-2025 PhD
Eawag, WSL, University of Zurich
Supervision: Dr. Lauren Cook, Dr. Marco Moretti, Prof. Dr. Florian Altermatt
Supporting biodiversity through the design of interlinked blue and green infrastructure in cities

2019-2021 **MSc Biology**
University of Geneva
Supervision: Dr. Juan Montoya-Burgos
Validation of environmental DNA metabarcoding as a tool for assessing the biodiversity, abundance, and seasonality of Alpine streams fauna

2016-2019 **BSc Biology**
University of Geneva
Supervision: Prof. Dr. Michelle Price
The use of mosses in the biomonitoring of urban areas

Professional experience

2026-2027 **Postdoctoral researcher**
Swiss Federal Institute of Snow, Forest and Landscape Reseach (WSL)
Supervision: Dr. Marco Moretti

2021-2025 **PhD student**
Swiss Federal Institute of Aquatic Science and Technology (Eawag), CH
Supervision: Dr. Lauren Cook

2019-2021 **Scientific collaborator**
University of Geneva, CH
Supervision: Dr. Juan Montoya-Burgos

2020-2021 **Research and teaching assistant**
University of Geneva, CH

Scientific community engagement

Workshop **Graphic design in science**
Eawag, CH
- Organized and led workshops on graphic design, including poster and figure creation
- Introduced early career researchers to concepts and tools of graphic design

Seminars **PhD Symposium and seminars**
Eawag, CH
- Coordinated themed research seminars and full-day presentation events
- Managed sessions featuring PhD candidates and invited speakers

Reviewing activities Nature Water, Ecography, Environmental DNA, Functional Ecology, Landscape and Urban Planning, Urban Ecosystems

Outreach

Articles

Perrelet, K., Moretti, M., Dietzel, A. (2024). **Erfassung der aquatischen und terrestrischen Gliederfüsser in urbanen Gebieten mit Umwelt-DNA** In *Biodiversität zwischen Wasser und Land* (pp. 186-187). Haupt.

Perrelet, K., Moretti, M., Dietzel, A., Maurer, M., Cook, L.M. (2023). **Villes éponges: pour et avec la biodiversité (Schwammstädte – für und mit Biodiversität gestalten)** *Hotspot*, 48, 22-23.

Moretti, M., Perrelet K., Frey D., Casanelles-Abella, J., Reji Chacko M., Fournier, B. (2025). **La biodiversité en milieu urbain – De quoi la biodiversité en ville a-t-elle besoin?** *DEP Droit de l'environnement dans la pratique*, Biodiversität im Siedlungsraum

Events

Nature and Science Festival
University of Zurich, 2024
- Co-organisation of outreach event

Eawag InfoDay
Eawag, 2024
- Technical assistance at outreach event on aquatic-terrestrial biodiversity

Eawag Open Days
Eawag, 2024
- Public outreach on the role of blue-green infrastructure in supporting biodiversity

Media

Interview for «l'environnement | die umwelt» (2-24).
Villes vertes : construire avec la nature (Grüne Städte: Die Natur als Partnerin), Federal Office for the Environment (FOEN)

- Conferences and invited talks

2025 **British Ecological Society annual meeting**
Edinburgh, UK
Small habitat patches are the largest contributors to urban biodiversity across taxonomic groups

2025 **Seminar series**
University of Toronto, CA
Supporting biodiversity through the design of interlinked blue and green infrastructure in cities (invited talk)

Supervision

2023 **Louise Gogibu**
Institut Polytechnique de Paris, FR
MSc thesis supervision
The impact of blue-green infrastructure on biodiversity

2024 **Océane Inglard**
Institut Polytechnique de Paris, FR
MSc thesis supervision
Study of meso- and macrofauna communities on Zurich green roofs: investigating the potential of green roofs to connect or complement urban green spaces using environmental DNA

Publications

Perrelet, K., Cook, L., Reji Chacko, M. , Altermatt, F., & Moretti, M. (2026). Food-webs on green roofs are unique but less stable than their ground-level counterparts, Journal of Applied Ecology, 63(2), e70306.

Dietzel, A., Moretti, M., **Perrelet, K.**, & Cook, L. M. (2025). Urban heat exacerbates climatic risks to urban biodiversity. Npj Urban Sustainability, 6(1), 4.

Perrelet, K., Cook, L.M., Reji Chacko, M., Altermatt, F., & Moretti, M. (2025). Urbanisation Drives the Decoupling, Simplification, and Homogenization of Aquatic and Terrestrial Food Webs. Ecology Letters, 28(9), e70212.

Perrelet, K., Moretti, M., Inglard, O., Altermatt, F., & Cook, L.M. (2025). Green roofs harbor different and non-substituting invertebrate communities than surrounding ground-level habitats. Journal of Environmental Management, 392, 126630.

Perrelet, K., Cook, L.M., Dietzel, A., Altermatt, F., & Moretti, M. (2025). Aquatic and terrestrial environmental DNA signals reveal decoupling of blue-green communities along an urbanization gradient. *Landscape and Urban Planning*, 260, 105376.

Blackman, R. C., Couton, M., Keck, F., Kirschner, D., Carraro, L., Cereghetti, E., **Perrelet, K.**, Bossart, R., Brantschen, J., Zhang, Y., & Altermatt, F. (2024). Environmental DNA: The next chapter. *Molecular Ecology*, 33(11), e17355.

Perrelet, K., Moretti, M., Dietzel, A., Altermatt, F., & Cook, L.M. (2024). Engineering blue-green infrastructure for and with biodiversity in cities. *npj Urban Sustainability*, 4(1), 1–11.

Preprints and unpublished manuscripts

Perrelet, K., Cook, L. M., Altermatt, F., Riva, F., & Moretti, M. (2026). Small habitat patches can be the largest contributors to urban biodiversity across taxonomic groups. bioRxiv.

Casanelles-Abella, J., Ruille, S., Bergamini, A., Daedlow, L., Fournier, B., Grothe, V., **Perrelet, K.**, & Moretti, M. (2025). Social-Ecological Signatures in Plant Species Composition Across Swiss Cities and Urban Green Space Types. Authorea.

2025 **Seminar series**
RPTU, DE
Urbanization simplifies and decouples aquatic and terrestrial food webs (invited talk)

2024 **British Ecological Society annual meeting**
Liverpool, UK
Urbanization simplifies and decouples aquatic and terrestrial food webs (talk) - Anne Keymer Prize (runner up)

2024 **GDC Symposium**
Zurich, CH
Aquatic and terrestrial environmental DNA signals reveal decoupling of blue-green linkages in urban ecosystems (invited talk)

2024 **World Biodiversity Forum**
Davos, CH
Environmental DNA uncovers aquatic and terrestrial arthropod community structures in cities (talk)

2024 **Biology24**
Zurich, CH
The hidden biodiversity of Zurich: eDNA insights on aquatic and terrestrial arthropods (poster)

2023 **British Ecological Society annual meeting**
Belfast, UK
Environmental DNA uncovers aquatic and terrestrial arthropod community structures in cities (talk)

2023 **Biology23**
Geneva, CH
Engineering for and with biodiversity in cities (poster)

2022 **Leese lab visit**
Duisburg-Essen, DE
eDNA in the city: primer design for terrestrial arthropods (invited talk)

2022 **World Biodiversity Forum**
Davos, CH
Engineering Blue-Green Systems to improve biodiversity: a perspective and review (talk)

2022 **Biology22**
Basel, CH
Engineering for biodiversity: integrating Blue-Green Systems using eDNA (poster)

Perrelet, K., Gobatti, L., Bernardini, E., Cavadini, G.B., Chen, J., Joshi, P., Maire, F., Waldner, L., Yin, Y., Maurer, M. (*in prep*). Design and maintenance arise in multifunctional blue-green infrastructure

Perrelet, K., Reji Chacko M., Ruille S., Moretti M., (*in prep*). Urbanization and urban green space design differentially shape the structure of primary-consumer and multitrophic ecological networks

Reji Chacko, M., Casanelles Abella, J., Fournier, B., Frey, D., **Perrelet, K.**, Moretti, M. (*in prep*). Local habitat quality reshapes but only partially buffers multi-trophic food-web robustness along an urban density gradient

Schär, S., Lienert, J., Cavadini, G.B., **Perrelet, K.**, Cook, L.M. (*in prep*). Advancing Multifunctionality Assessments of Blue-Green Infrastructure by Integrating Mechanistic and

Ruile, S., Ghazoul J., Gossner, M., Knecht, A., Knuser, A., **Perrelet, K.**, Moretti, M. (*in prep*), Plant-Insect interaction across different urban green space types