

Pierre Bouchet

PhD Candidate in Ecology

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Research Interests

Macroecology · functional ecology · trait-based approaches · biogeography · human use of biodiversity · extinction risk and biological invasions · conservation.

I investigate how human exploitation reshapes the functional diversity of vertebrates at the global scale. Combining functional traits, morphospace analyses and global databases, I ask whether particular trait combinations are preferentially targeted by humans, how this varies across biogeographic realms, and how non-native species alter the functional structure of native faunas.

Education

Sept 2024 – present <i>Defence expected Sept 2027</i>	PhD in Ecology <i>Université Toulouse III – Paul Sabatier, CRBE, Toulouse, France</i> Thesis: <i>Functional diversity of vertebrates and human use: linking functional traits, human uses and the biodiversity crisis.</i> Supervisors: Dr Aurèle Toussaint and Prof. Sébastien Brosse. Member of the TULIP Graduate School. Funding: ministerial doctoral contract, Doctoral School SEVAB.
2023 – 2024	M.Sc. Biogeography & Macroecology <i>Muséum national d'Histoire naturelle (MNHN), Paris, France</i> Ranked 2/12; 16.12/20; highest honours.
2022 – 2023	M.Sc. Functional & Evolutionary Ecology <i>Muséum national d'Histoire naturelle (MNHN), Paris, France</i> 14.35/20; high honours.
2020 – 2022	B.Sc. Geography & Environment <i>Université Jean Monnet, Saint-Étienne, France</i> Ranked 1/38; 16.01/20; highest honours.
2018 – 2020	B.Sc. Biology <i>Université Jean Monnet, Saint-Étienne, France</i> Ranked 7/31; 12.8/20; honours.

Publications

Peer-reviewed articles

- [1] Bouchet, P., Brosse, S., & Toussaint, A. (2026). Human targeting of morphologically unique fishes amplifies the risk of functional erosion. *Nature Communications*, 17, 10697. doi:10.1038/s41467-026-78568-9

Data and code

- **FishUsage**: R code and data supporting Bouchet et al. (2026, *Nat. Commun.*).
github.com/pierrolaloune/FishUsage

Conference Presentations

Sept 2026	Human targeting of morphologically unique fishes amplifies the risk of functional erosion <i>Joint NSO–GfÖ Conference 2026 (Nordic Society Oikos and Ecological Society of Germany, Austria and Switzerland), Odense, Denmark</i> Oral presentation.
Aug 2025	Threatened freshwater fish used by humans support unique morphological traits <i>Ecology & Behaviour, Montpellier, France</i> Oral presentation.

Funding and Grants

2024 – 2027	Ministerial doctoral contract , Doctoral School SEVAB, Université Toulouse III – Paul Sabatier.
2026	TULIP Graduate School PhD Mobility Package , to present at the Joint NSO–GfÖ Conference 2026, Odense, Denmark.

Research Experience

Feb 2024 – July 2024	M.Sc. research internship (M2) in Community Ecology <i>CNRS, Montpellier, France</i> Identification of pyric and herbivore communities across the Mediterranean basin. Functional ecology, mapping, community ecology.
May 2023 (1 month)	Field Ecology Intern <i>Biological Station of Paimpont, Brittany, France</i> Impact of wastewater treatment plants on the ecological quality of rivers. Aquatic ecology, biophysical measurements, freshwater macroinvertebrates.
Feb 2023 – July 2023	M.Sc. research internship (M1) in Functional Ecology <i>CNRS, UMR AMAP, Montpellier, France</i> Functional traits of Mediterranean woody plants in relation to fire and herbivory. Landscape ecology, plant architecture, R.
Jan 2022 (1 month)	Research Assistant in Geo-archaeology <i>University of Burgundy, Dijon, France</i> LiDAR analysis and mapping of archaeological structures. LiDAR, GIS.
May 2021 – June 2021	Field Archaeology Intern <i>University of Burgundy, Haut-Velay, France</i> Prospection of castral sites and spatial analysis. Ground survey, landscape analysis, mapping.
Jan 2020 – Feb 2020	B.Sc. research internship in Environmental Microbiology <i>IRD, Bondy, France</i> Microbial communities in Technosols. DNA sequencing, qPCR, R.

Teaching

Université Toulouse III – Paul Sabatier, 2024 – present.

B.Sc. year 1	Animal Biology: major animal lineages, comparative anatomy, fundamentals of biology.	32 h/yr
B.Sc. year 3, M.Sc. years 1–2	Aquatic Ecology: aquatic biodiversity inventories, freshwater macroinvertebrates, electrofishing.	25 h/yr
B.Sc. year 3	Chemical Ecology: HPLC, chemical signalling in ecological interactions.	15 h/yr
B.Sc. year 2	General Ecology: soil ecology, identification and classification of soil fauna.	9 h/yr

Student Supervision

Feb 2026 – July 2026	Pierre Bertrand, M.Sc. (M2) internship, co-supervision <i>CRBE, Toulouse</i> Intraspecific trait variation of freshwater fishes from French Guiana.
June 2026	High-school student, observation internship <i>CRBE, Toulouse</i> Introduction to research and to the doctoral process.

Science Outreach

Oct 2026	Sauvages de ma Rue (urban flora citizen science), Fête de la Science, Mur-de-Barrez, France.
Nov 2025	Les étoiles brillent pour tous , Toulouse, France.
May 2025	Pint of Science , Toulouse, France.

Skills

Statistics & R	Advanced R (tidyverse, ggplot2, mgcv, vegan, FD, TPD, funspace, missForest); GAMs, multivariate analyses, null models and permutation tests, functional diversity and morphospace metrics.
Computing	High-performance computing (cluster jobs), reproducible workflows with Git/GitHub and Zenodo, $\LaTeX$.
GIS	QGIS, LiDAR processing, mapping and spatial analysis.
Fieldwork	Fieldwork in tropical environments; biodiversity inventories and sampling; fishing techniques; identification of fishes and freshwater macroinvertebrates; plant functional traits.
Languages	French (native), English (C1).

Other Professional Experience

2021 – 2022	Night watchman and social mediator , Foyers Épis, Saint-Étienne, France. Night surveillance and medico-social mediation.
2019 – 2021	Student librarian and monitor , Université Jean Monnet, Saint-Étienne, France. Biology and Geography sections.
2018 – 2019	Client manager (Cap d'Agde Conciergerie), logistics manager (Université Jean Monnet), service and cashier (Librairie de Paris, McDonald's).

References

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