Thomas BRAZIER

Post-doctoral position at the Ecosystems, Biodiversity, Evolution lab (ECOBIO)
CNRS/University of Rennes, FRANCE

Born on the 16th of October 1986 (39 years old), French citizen, one child, civil partnership

Living at 16, rue de la ville en pierre, 35500 Vitré, FRANCE

Phone: +33 (0)6 70 48 42 12 Mail: thomas.brazier@univ-rennes.fr

ORCID 0000-0001-5990-7545 Website: https://thomasbrazier.github.io

I am an evolutionary biologist and population geneticist broadly interested in genome evolution and patterns of genetic diversity across genomes, populations, and species. I have a PhD in Ecology and Evolution, with strong experience in population genomics, especially the study of recombination landscapes. My ongoing research uses comparative genomics to study genome evolution, with a focus on understanding the diversity of structural variation across the eukaryotic tree of life.

EDUCATION BACKGROUND

26/02/2024 Qualified for MCU (Assistant Professor) position.

01/10/2019 – 31/12/2022 **PhD in Ecology and Evolution.** CNRS/Rennes 1 University, ECOBIO Unit. Title: *Recombination Landscapes and Genome Evolution in Angiosperms*. Supervisor: Sylvain Glémin. Date of defense: 13/12/2022.

01/09/2017 – 30/06/2019 MSc Biodiversity Ecology & Evolution, Rennes 1 University – with honors (first of the class).

01/09/2016 – 30/06/2017 BSc Biology of Organisms, Aix-Marseille University – with honors (first of the class)

01/09/2014 – 30/06/2016 BSc Life Science, Paris 6 University Pierre et Marie Curie

01/09/2007 – 30/06/2010 ENS Louis Lumière, Cinéma, Photography & Sound School, École Nationale Supérieure Louis Lumière – with honors

01/09/2004 – 30/06/2007 Bachelor of Arts, Paris X Nanterre University – with honors

31/06/2004 High School Diploma in Science – with honors

POST-DOCTORAL EXPERIENCE

01/07/2024 – 31/07/2026 (24 months). Project: ERC EvolSV, Supervisor: Claire Mérot. Title: *Structural Variation & genetic diversity: How variable and how similar are structural diversity and evolutionary patterns driven by SVs across the tree of life, and why?*

01/01/2022 – 31/06/2024 (18 months). Project: ANR CisTransEvol. Supervisors: Sylvain Glémin & Thomas Lenormand. Title: *Evolution of gene expression and the runaway process*.

INTERNSHIP EXPERIENCE

01/2019 – 06/2019 MSc internship (6 months), INRAE UMR DECOD. Supervisor: Scott McCairns, Title: *Inferring invasion pathways and source population of the topmouth gudgeon (Pseudorasbora parva) in Europe with Machine Learning and ABC* (**Published in Biol. Invasions**).

04/2018 – 08/2018 MSc internship (4 months), INRAE UMR DECOD. Supervisor: Eric Petit , Title: *Limited male dispersal and mating system in lesser horseshoe bats (Rhinolophus hipposideros)* (**under review at PCI EvolBiol**).

OTHER PROFESSIONAL BACKGROUND

07/2010 – 12/2017 Grip/Key grip. Cinema and television.

PUBLICATIONS

7 publications accepted and one pre-print (**6 as first author**), 191 citations, h-index 5. *shared authorship

8. **Brazier, T.** & Mérot, C. (**2025**). Genomic architecture of rapid adaptation illustrated by biological invasions. *Nature Ecology and Evolution*. News & Views. 1-2.
7. **Brazier, T.**, Stetsenko, R., Roze, D., Glémin, S. (**2025**). Mating system and the evolution of recombination rates in seed plants. *Journal of Evolutionary Biology*, voaf008.
6. Dallaire, X., Normandeau, E., **Brazier, T.**, Harris, L., Hansen Michael, M. M., Mérot, C., & Moore, J. S. (**2025**). Leveraging Whole Genomes, Mitochondrial DNA and Haploblocks to Decipher Complex Demographic Histories: An Example From a Broadly Admixed Arctic Fish. *Molecular Ecology*, e17772.
5. **Brazier, T.**, Zarzoso-Lacoste, D., Lehnen, L., Jan, P.-L., Puechmaille, S.J., & Petit, E. J. (**2024**). The geometry of gametic dispersal in a flying mammal, *Rhinolophus hipposideros*. *bioRxiv* 2024.10.24.620000. In review at PCI EvolBiol.
4. **Brazier, T.** & Glémin, S. (**2024**). Diversity in Recombination Hotspot Characteristics and Gene Structure Shape Fine-Scale Recombination Patterns in Plant Genomes. *Molecular Biology and Evolution*. 41 (9).
3. **Brazier, T.** & Glémin, S. (**2022**). Diversity and determinants of recombination landscapes in flowering plants. *PLoS Genetics*. 18 (8), e1010141.
2. **Brazier, T.***, Cherif, E.*, Martin, J.F., Gilles, A., Blanchet, S., Zhao, Y., et al. (**2022**). The influence of native populations' genetic history on the reconstruction of invasion routes: the case of a highly invasive aquatic species. *Biological Invasions*. 24 (8), 2399-2420.
1. Foley, N.M., Petit, E.J., **Brazier, T.**, Finarelli, J.A., Hughes, G.M. Touzalin, F., Puechmaille, S.J., Teeling, E.C. (**2020**). Drivers of longitudinal telomere dynamics in the long‐lived bat species, Myotis myotis. *Molecular Ecology*. 29 (16), 2963-2977.

SOFTWARE & PIPELINES

EasyMareyMap Estimate recombination maps from genetic maps, R package.
https://github.com/ThomasBrazier/EasyMareyMap

LDhat-snakemake LD-based recombination maps, Snakemake pipeline.
https://github.com/ThomasBrazier/ldhat-snakemake-pipeline

Evolsv Structural Variant calling from long reads, Snakemake pipeline. *https://github.com/ThomasBrazier/evolsv* Collaboration with Claire Merot (ECOBIO), Claire Lemaitre (INRIA) and the Wellcome Sanger Institute (Cambridge).

ABCNeuralNet Bayesian Deep Learning and Approximate Bayesian Computation for parameter inference, R package, work under progress (in prep). *https://github.com/ThomasBrazier/abcneuralnet*

COMMUNICATIONS AT CONFERENCES

Oral presentations

2025 Evolution, US.

2024 PopGroup 57, UK.

2021 Evolution, US.

Posters

2025 Jacques Monod Conference. *Speciation: bridging macro- and micro-evolution*, FR.

2025 Alphy. Alignment and Phylogeny, FR.

2025 PopGroup 58, UK.

2023 Jacques Monod Conference. *Sex unfolded: sex, asex, sexes*, FR.

2022 Petit Pois Déridé, FR.

2022 Scientific Days of the Doctoral School, FR.

2021 Post-Docs and Student Meiosis Conference, online.

DISSEMINATION AND OUTREACH

31/01/2025 Workshop "**Towards reproducible software environments for open science practices**", ECOBIO seminars.

18/04/2024 Invited to present my PhD at a **Seminar** at the University of Sussex, Brighton, UK.

23/11/2022 **Brazier T.** & Glémin S. (2022). "Quelle diversité et quels déterminants pour les paysages de recombinaison parmi les plantes à fleurs ?". In *Observatoire des sciences de l'environnement de Rennes*, short text in the local scientific newsletter.

09/05/2022 **Brazier T.***, Cherif E.*, et al. (2022). "Connaître l'histoire génétique des populations endémiques permet de retrouver l'origine des populations invasives : le cas du poisson *Pseudorasbora parva*". In *Observatoire des sciences de l'environnement de Rennes*, short text in the local scientific newsletter.

24/09/2020 **Seminar** (invited) at the Institut Jean-Pierre Bourgin, INRAE, Versailles, FR.

REVIEW ACTIVITY

Reviewer for eLife (1), Evolution Letters (1), Nature Plants (1), GBE (2), Wellcome Sanger Genome Notes (2), Heredity (1) and Journal of Evolutionary Biology (1).

MENTORSHIP

04/2025 – 06/2025 Matthew Tilly, MSc internship (M1). *Evolution of recombination landscapes during domestication*.

01/2024 – 06/2024 Remy Delage, MSc internship (M2). *Recombination gradients and GC gradients within plant genomes*.

09/2023 – 11/2023 Project Tutoring (2 M2 students). During one semester, I have been tutoring two Master students (M2) for a practical programming project which I designed and led (one hour per week effectively). They had to code quality controls and visualisation tools which will be integrated in our own SV calling pipeline.

04/2023 – 06/2023 Co-supervisor of Lune Angevin, MSc internship (M1). Lune implemented a bioinformatic pipeline to detect and call genomic structural variants based on the Darwin Tree of Life data.

01/2021 – 06/2021 Co-supervisor of Elise Rolland, MSc internship (M2). Elise implemented a bioinformatic pipeline to estimate recombination landscapes at fine scale from population data.

04/2020 – 06/2020 Co-supervisor of Léo Salema-Gabrelle, M.Sc. internship (M1). Léo studied the evolution of recombination patterns and their genomic consequences in angiosperms.

TEACHING

2024 – 2025 Data Visualization and Manipulation in R (M1)

2019 – 2022 Jury for M1 Bio-informatic internships

2019 – 2022 Advanced R programming (M1)

2020 – 2022 Statistics for Biology 1 (L2)

2020 – 2022 Statistics for Biology 2 (L3)

2021 – 2022 Statistics in Ecology (L3)

2019 – 2020 Introduction to Statistics 1 (L2)

2019 – 2020 Introduction to Statistics 2 (L3)

2019 – 2020 Bioinformatics and Genomics (M1)

GRANTS

02/2026 Seal of Excellence MSCA call 2025 (94.20/100). Not funded.

04/2023 ECOBIO Grant. Funding for a 6-month M2 internship (€ 6000).

04/2022 ECOBIO Grant for a metagenomic study of micro-organisms communities in forest soil between ancient and recent forest lands (€ 5000). In this project I developed skills for sampling forest soil, DNA extraction and sequencing micro-organisms.

06/2019 PhD grant of the Doctoral School (3-years funding).

WORKSHOPS & TRAINING

2025 Summer school Software and Statistical Methods for Population Genomics (France).

2025 Workshop SLiM, led by Ben Haller, Rennes (France).

2025 QLife Winter school Quantitative Genetics, ENS Paris (France).

2024 Workshop Programming with Julia (HPC/Applied mathematics department Rennes).

2024 Deep Learning Specialization (MOOC Coursera, 3 months, 10 hours/week).

2023 Phylogenomic. CNRS Formation led by Stephan Guindon (Montpellier, France).

2022 Docker (MOOC).

2021 Ethic & Integrity (MOOC).

2021 CNRS Summer school. Detection and Annotation of Transposable Elements.

2021 Biogenouest Platform. Introduction to Genome Assembly/Annotation with Galaxy.

2021 Python programming: from fundamentals to advanced concepts (MOOC).

2020 GDR Ecostat. Statistics for Ecology workshop (Rennes, France).

2019 Introduction to Wolfram Mathematica (Rennes, France).

2019 C++ programming. M.Sc. class (Engineer School, Rennes, France).

2016 Des rivières et des hommes : hydrologie, hydraulique et géomorphologie (MOOC).

2015 Python programming. (MOOC).

ADDITIONAL INFORMATION

Scholarly societies

2024 - ongoing Member of the **Society of Molecular Biology and Evolution**.

Unit life

2025 – 2026 Elected member of the Unit Consultative Board.

2021 – 2015 Volunteer for the Labo 1.5 initiative in the ECOBIO laboratory.

2020 – 2023 Elected member of the Doctoral School advisory board (Rennes).

2020 – 2022 Book club led by Martin Lascoux (Uppsala University).

2019 – ongoing Recurrent animator of the ECOBIO laboratory journal club.

Collaborations outside the unit

Claire Lemaitre (INRIA, Rennes). Claire L. is a partner for methodological developments to address the diversity of Structural Variation within Eukaryotes genomes of the Darwin Tree of Life project.

Anne-Marie Chèvre and Mathieu Rousseau-Gueutin (INRAE IGEPP, Rennes). I provided **expertise to estimate recombination maps** in a polyploid Brassicaceae species.

Adam Eyre-Walker (University of Sussex, UK). Dr. Eyre-Walker is a leading expert on the rates, patterns and effects of mutations. As the effect of recombination can mimic mutagenic effects and selection in favor of certain nucleotides, I began to discuss with him for a paper based on my thesis. Besides, I am also **involved with him in a project aiming to estimate effective population sizes based on patterns of linkage disequilibrium**. As such, I have been invited to give a seminar at his lab (April 2024).

Laurent Duret and Nicolas Lartillot (LBBE, Lyon University). I have been involved in the **HotRec French ANR project**, which was studying meiotic recombination in metazoans, while I was studying recombination patterns in plants. I did recurrent meetings and travels at the LBBE.

Christian Brochmann (Oslo University). I have been involved in the Speciation Clock project in Norway, for which I applied **population genetics methods to study population structure and demography** between populations of the Arctic crucifer *Draba nivalis*.