

## ACADEMIC BACKGROUND

---

- 2018 - 2021 **Post-doc in community ecology, theoretical evolutionary ecology and evolutionary demography**, supervised by B.E.S. Sæther and S. Engen- **Centre for Biodiversity Dynamics, NTNU** (Trondheim, Norway)
- 2013 - 2017 **PHD in theoretical ecology, ecological mathematical modelling and evolutionary demography**, supervised by S. Pavard and F. Austerlitz - **Muséum National d'Histoire Naturelle** (UMR7206 Eco-Anthropologie et Ethnobiologie, Musée de l'Homme) – **Chair MMB – FdV** doctoral school  
“The costs of reproduction in evolutionary demography: an application of Multitrait Population Projection Matrix models”.
- 2011- 2013 **Master in ecology EBE (M2) ENS-AgroParisTech** - Specialization: Theoretical Ecology and Modelling, **Master in life sciences AIV (M2) Centre for Research and Interdisciplinarity (CRI)** free auditor
- 1999- 2000 **Master in mathematics (M2) Ecole Centrale Paris**: 3<sup>rd</sup> year specialization: with courses externalised at **ENS-P6: Master in algorithms and encryption (M2)**
- 1997 - 2000 **Graduate School of Engineering in Mathematics and Physics – Ecole Centrale Paris**
- 1995 - 1997 **Special intensive courses of Advanced Mathematics and Physics** (undergraduate level) - **Lycée du Parc** (Lyon)

## PROFESSIONAL EXPERIENCE

---

### Complementary Activities in Research

- 2017-2020 **Reviewing activities** – for Theoretical Population Biology, the American Naturalist, Oikos, Nature Communications, Methods in Ecology and Evolution, NSF funding proposals, Ecology and Evolution, Natural resource Modelling.
- 2018-2020 **Teaching**: NTNU – Bachelor level – population dynamics and population ecology.  
**Teaching**: NTNU – Master level – population projection models and population genetics.
- 2013-2017 **Teaching**: MNHN – doctoral school – population projection models
- 2013-2017 Member of “**chaire Modélisation Mathématiques et Biodiversité**” (**MMB**), Conferences and summer schools
- 2013-2017 **Frontiers of Life Sciences Doctoral School** - organisation / active participation in clubs (Modelizators anonymous with S. Douady, Games to teach and do research with A.Chotia), courses and journal club - redaction of article for The Conversation

### Other Work Experience

- 2005 – 2011 **Deutsche Bank**, London - Financial engineering, interest rate structuring, interest rate, algorithms, asset and liability management, client presentations, conferences. Head of a team of 5 people.  
**Developed skills: algorithms, modelisation, project management, communication**
- 2000 – 2005 **Morgan Stanley**, London - Financial engineering involving credit and interest rate structuring.  
**Developed skills: statistics, modelisation, algorithms**

## PUBLICATIONS

---

- C.F.D. Coste, F. Austerlitz, S. Pavard. **Trait level analysis of multitrait population projection matrices**. Theoretical Population Biology. 2017
- Coste, C.F.D., Pavard, S., 2020. **Analysis of a multitrait population projection matrix reveals the evolutionary and demographic effects of a life history trade-off**. Ecol. Modell. 418, 108915.
- Layton-Matthews, K., Loonen, M.J.J.E., Hansen, B.B., Coste, C.F.D., Sæther, B.E., Grøtan, V., 2019. **Density-dependent population dynamics of a high Arctic capital breeder, the barnacle goose**. J. Anim. Ecol. 1–11.
- Cohen, A.A., Coste, C.F.D., Li, X., Bourg, S., Pavard, S., 2019. **Are trade-offs really the key drivers of aging and lifespan?** Funct. Ecol. 1365-2435.13444.
- Pavard, S., Coste, C.F.D., 2019. **Goodman, Keyfitz & Pullum (1974) and the population frequencies of kinship relationships**. Theor. Popul. Biol.
- Pavard, S., Coste, C.F.D., 2019. **Evolution of the Human Life Cycle**, in: Reference Module in Biomedical Sciences. Elsevier, pp. 46–56.
- S. Pavard and C.F.D. Coste. **Susceptibility alleles to late-onset diseases**, under review
- C.F.D. Coste, S. Tuljapurkar, U.Steiner, J.M Gaillard and S. Pavard. **Introducing individual stochasticity into life-history models : a new typology of life-history trade-offs**, in prep

## Oral communications

- Typology of life history trade-offs applied to the costs of reproduction, [British Ecological Society annual meeting](#) , 12/12/2019, Belfast, Northern Ireland (talk accepted but not performed due to personal issues).
- Trait Level Analysis of Multitrait Projection Matrices allows to implement kinship effects in evolutionary demography models, [The First Nordic Biomathematics Days](#), 22/10/2019, Helsinki, Finland
- The Antagonistic Pleiotropy Riddle for populations along the slow-fast continuum, [ESEB 2019 Conference \(European Society for Evolutionary Biology\)](#), 20/08/2019, Turku, Finland
- Using multitrait population projection models to analyse the effects of individual life-history trade-offs on individual fitness, [7th annual conference of Mathematical Models in Ecology and Evolution](#), 17/07/2019, Lyon, France
- Using multitrait projection models to disentangle fixed and dynamic heterogeneity, 4th [Norwegian Ecological Society Conference](#), 11/02/2019, Tromsø, Norway
- Workshop: How traits impact metrics of evolution and demography in multi-trait matrix population models, [Evolutionary Demography society annual meeting](#) 12/01/2019, Miami, Florida, USA
- Using Trait Level Analysis of Multitrait Matrices to analyse the effects of Costs of Reproduction on Individual Fitness, [Evolutionary Demography society annual meeting](#) 10/01/2019, Miami, Florida, USA
- Evolutionary consequences of physiological costs of reproduction, [Evolutionary Demography society annual meeting](#) 08/01/2018, Lyon, France
- The effects of costs of reproduction on the variance in reproductive success. [Chair Mathematical Modelling of Biodiversity meeting](#), 15/12/2018, Jardin des Plantes, Paris, France
- Folding of Multitrait matrices. [Evolutionary Demography society annual meeting](#) 15/11/2017, Stanford, California, USA

## Posters

- [C.F.D. Coste](#), S. Pavard. A General Method to Infer the Kinship Structure of a Population from its Demography. 4<sup>th</sup> Conference of the Nordic Society Oikos, 03/03/2020, Reykjavik, Iceland.
- [C.F.D. Coste](#), F. Austerlitz, S. Pavard. Folding of Multitrait matrices. Evolutionary Demography society annual meeting 2013, Stanford, California, USA
- [C.F.D. Coste](#) Evolutionary consequences of physiological costs of reproduction, Evolutionary Demography society annual meeting 08/01/2018, Lyon, France

## ADDITIONAL INFORMATION

---

Nationality	French
Data of birth	03/12/1977
Computer languages	R, Matlab
Languages	French: mother tongue; English: Fluent and professional
Hobbies	History, Linguistics, Ethnology and Music (travels in Middle-East, Central Asia)