

Julie M. Collet

PERSONAL DATA

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NATIONALITY: French

RESEARCH POSITIONS

<i>Current</i> MAR 2018 - FEB 2020	Marie Skłodowska-Curie Fellow <i>Understanding sexual selection to help controlling an invasive pest species</i> Center of Functional Ecology and Evolution (CEFE), French National Center of Scientific Research (CNRS), Montpellier, France. With: Dr. Patrice David
SEP 2016 - FEB 2018	Agreenskills Plus Fellow <i>Genetic covariance of resistance traits in different life stages</i> Center for Population Biology and Management (CBGP), French National Institute for Agricultural Research (INRA), Montpellier, France. With: Dr. Simon Fellous
AUG 2012 - AUG 2016	Post-doctoral research associate, <i>Pleiotropy: extent, selection, modularity using gene expression in Drosophila serrata</i> School of Biological Sciences, University of Queensland, Brisbane, Australia. With: Prof. Mark Blows
MAR 2010 - JUL 2012	Post-doctoral research assistant, <i>Quantitative Trait Loci of sexual antagonism in fruitflies</i> Department of Genetics, Evolution and Environment, University College London, UK. With: Dr. Max Reuter and Prof. Kevin Fowler
OCT 2006 - JUN 2012	DPhil of Zoology, <i>The operation of sexual selection in the red junglefowl</i> Edward Grey Institute, University of Oxford, UK. With: Dr. Tommaso Pizzari
MAY - JUL 2006	Field assistant, <i>Mate choice in a population of house sparrows</i> Edward Grey Institute, University of Oxford, UK. With: Dr. Shinichi Nakagawa and Prof. Terry Burke
JAN - AUG 2005	Master's project, <i>Comparative study of female post-copulatory responses related to sperm length in species of Drosophila.</i> LEGS (Evolution, Genome, Speciation), CNRS, Gif-Sur-Yvette, France. With: Dr. Dominique Joly

PUBLICATIONS

1. **Collet J. M.**, McGuigan K., Allen S. L., Chenoweth S. F., and M. W. Blows (2018) “Mutational pleiotropy and the strength of stabilizing selection within and between functional modules of gene expression.” **Genetics** 208 (4): 1601-1616.
2. Hill, M. S., Ruzicka F., Fuentes S., **Collet J. M.**, Morrow E.H., Fowler K., and M. Reuter (2017) “Sexual antagonism exerts evolutionary persistent genomic constraints on sexual differentiation in *Drosophila melanogaster*.” **bioRxiv**.
3. **Collet J. M.**, Fuentes S., Hesketh J., Hill M. S., Innocenti P., Morrow E.H., Fowler K., and M. Reuter (2016) “Rapid evolution of the inter-sexual genetic correlation for fitness in *Drosophila melanogaster*.” **Evolution** 70 (4): 781-795.
4. **Collet J. M.**, Blows M. W., and K. McGuigan.(2015) “Transcriptome-wide effects of sexual selection on the fate of new mutations.” **Evolution** 69 (11):2905-2916.
5. Blows M. W., Allen S. L., **Collet J. M.**, Chenoweth S. F., and K. McGuigan. (2015) “The phenome-wide distribution of genetic variance.” **Am Nat** 186 (1): 15-30.
6. **Collet J. M.** and M. W. Blows. (2014) “Female mate choice predicts paternity success in the absence of additive genetic variance for other female paternity bias mechanisms in *Drosophila serrata*.” **J Evol Biol** 27 (11): 2568-2572.
7. McGuigan K., **Collet J. M.**, Allen S. L., Chenoweth S. F., and M. W. Blows. (2014) “Pleiotropic mutations are subject to strong stabilising selection” **Genetics** 197 (3): 1051-1062.
8. **Collet J. M.**, Dean R. F., Worley K., Richardson D. S., and T. Pizzari. (2014) “The measure and significance of Bateman’s principles.” **Proc Roy Soc B: Biol Sci** 281 (1782).
— F1000 Prime recommendation (Bryan Neff and Tim Hain): ”confirmation” and ”‘good for teaching”
9. McGuigan K., **Collet J. M.**, McGraw E. A., Ye Y. H., Allen S. L., Chenoweth S. F., and M. W. Blows (2014) “The nature and extent of mutational pleiotropy in gene expression of male *Drosophila serrata*.” **Genetics** 196 (3): 911-921.
10. **Collet J.**, Richardson D., Worley K., and T. Pizzari. (2012) “Sexual selection and the differential effect of polyandry.” **Proc Natl Acad Sci USA** 109 (22): 8641-8645.
11. Worley K., **Collet J. M.**, Spurgin L. G., Cornwallis C., Pizzari T., and D. S. Richardson. (2010) “MHC heterozygosity and survival in red jungle fowl.” **Mol Ecol** 19(15): 3064-3075.

— Total number of citations: 188 (WoS) or 259 (Google Scholar)
— H index: 7
12. **Collet J. M.** and S. Fellous. (subm. to **Proc Roy Soc B: Biol Sci**) “Do traits separated by metamorphosis evolve independently? Concepts and methods.”
13. **J. M. Collet** (subm. to **J Evol Biol**) “Levels of seminal fluid protein gene expression are targets for deleterious pleiotropic mutations that are purged by pre-copulatory sexual selection.”

EDUCATION

- 2012 | **DPhil of Zoology**
Edward Grey Institute, University of Oxford
- 2005 | **Master in ecology, biodiversity, evolution**
Pierre and Marie Curie University (UPMC Paris 6)
Specialisation: molecular and adaptive ecology, *Options* included theoretical ecology and statistics, molecular population genetics and coalescence, adaptive evolution and coevolution: theoretical approaches, behavioural ecology
- 2005 | **Licence (Undergraduate degree) in biology of organisms**
Pierre and Marie Curie University (UPMC Paris 6)

RESEARCH AND TRANSFERABLE SKILLS

- Advanced multivariate quantitative genetics methods and designs (multiple breeding designs, mutation accumulations, hemiclone, DGRP, development of quantitative methods to consider thousands of traits at the same time)
- Advanced expertise in statistics, statistics software packages and coding: R (e.g. REML with nlme and lme4, MCMCglmm), Wombat (REML), JMP
- Assays of fitness components (mating and reproductive success), in particular in *Drosophila* spp. and the red junglefowl (female fecundity, male mating assays, survival)
- Molecular methods: RNA (TRIzol) and DNA (Qiagen kits) extractions, PCR, RNAseq libraries and quality control (qPCR, Agilent Bioanalyser, Fragment analyser) and other laboratory procedures
- Bioinformatics (Large gene expression datasets, RNAseq: RNASTAR, FastQC, Trimmomatic, microarrays, GO terms, attendance at the courses Bio-Linux workshop at EMBL-EBI in March 2012, Cambridge, UK)
- Cuticular HydroCarbons profiling
- Biochemistry assays: Phenoloxydase and rotein dosage
- Animal husbandry (*Drosophila* spp., red junglefowl)
- Laboratory management (incl. human resources)

PRIZES AND AWARDS

- 2018-2020 | **Marie Skłodowska-Curie Individual-Fellowship** Reintegration panel.
Rated 96/100.
- 2016-2018 | **Agreenskills Plus Fellowship.**
AgreenSkills is an international postdoctoral fellowship programme co-funded by the European Union and coordinated by INRA , in collaboration with Agreenium-IAVFF , the French national higher education and research consortium. The programme promotes international mobility for experienced young and independent researchers to develop challenging basic or targeted research projects in the fields of agriculture, food, nutrition, environment, and animal health.
Ranked second best Incoming project..
- 2006-2009 | **BBSRC Studentship.**
I received a fees only award (in open competition) due to non-UK residency. Independently I obtained all the funds necessary for my stipend for the duration of my studies.
- 2007-2008 | **Light Senior Scholarship** from St. Catherine's College.
Small grant awarded to the best candidates across disciplines, open to all Graduate students of the University of Oxford.
- 2006 | **ASAB Conference Grant.**
Award to help postgraduate students, and others, attend ASAB conferences.

TEACHING

- 2008-2010 | **Lecturing, demonstrating and organisation** of the Statistics with R for Graduates course
University of Oxford
- 2008-2010 | **Lecturing, demonstrating and organisation** of the Data handling course for the first year of the Biological Sciences BA
University of Oxford
- 2007-2009 | **Demonstrating** of the Organisms course for the first year of the Biological Sciences BA
University of Oxford
- 2007-2008 | **Demonstrating** of the Data handling course for the first year of the Biological Sciences BA
University of Oxford
- 2008 | Attendance of a **Teaching workshop**
University of Oxford
- 2007-2010 | **Tutor of French**
Alliance Française of Oxford, French language school officially endorsed by the French government

MENTORING

- 2018 | **Mentoring of an undergraduate student** Alexandre Andersen.
Training for an undergraduate degree to become a technician. Project: Indirect evolution of resistance across life stages.
- 2013-2014 | **Training and management of two research assistants:** Jessica McCarroll and Grace Stanton.
Training in lab procedures and administrative duties, mentoring of the scientific projects in which they were involved.
- 2009 | **Mentoring of a Master's student:** Cian O'Lunaigh.
Project derived from my dissertation research: Importance of sperm traits for fertilisation success in a semi-natural population of red junglefowl.
- 2009 | **Mentoring of an undergraduate student:** Eliana Tacconi.
Project developed together: Cryptic female choice and male social status.
- 2009 | **Mentoring of an undergraduate student:** Vanessa Onwuemezi.
Project derived from my dissertation research: Cryptic female choice and sperm haplotype.
- 2008 | **Mentoring of an undergraduate student:** Reesha Soda.
Project derived from my dissertation research: Operation of sexual selection on male traits.

INVITED SEMINARS AND INVITED PRESENTATIONS

1. **Collet J. M.**, MAY 2017. Invited seminar. *Pleiotropy: Extent, selection, modularity*. Centre de Biologie pour la Gestion des Populations, INRA, France.
2. **Collet J. M.**, FEB 2011. Invited seminar. *The effect of polyandry on male sexual selection*. Department of Genetics, Environment and Evolution, University College London, UK.
3. **Collet J. M.**, OCT 2010. Invited seminar. *The paradox of Polyandry*. Department of Genetics, Environment and Evolution, University College London, UK.
4. **Collet J. M.**, FEB 2010. Invited talk. *The Bateman principles revisited: lessons from a gonochoric species*. Simultaneously Hermaphroditic Meeting, Amsterdam, Netherlands.
5. **Collet J. M.**, NOV 2009. Invited seminar. *Sexual selection in the red junglefowl*. Department of zoology, University of Oxford, UK.
6. **Collet J. M.**, MAY 2008. Invited seminar. *Promiscuity strengthens sexual selection*. St Catherine's College, University of Oxford, UK.
7. **Collet J. M.**, MAR 2008. Invited seminar. *Sexual selection and predictors of male and female reproductive success*. The Edward Grey Institute, University of Oxford, UK.
8. **Collet J. M.**, FEB 2006. Invited talk. *Post-copulatory responses related to sperm length*. Department of Environmental Sciences, University of Basel, Switzerland.

ORAL PRESENTATIONS AT INTERNATIONAL CONFERENCES

1. **Collet J. M.**, K. McGuigan, S. Allen, S.F. Chenoweth, M. W. Blows. AUG 2017. *A genome-wide test of the modular structure of pleiotropy*. Congress of the European Society for Evolutionary Biology, Groningen, Netherlands.
2. **Collet J. M.**, M. W. Blows, K. McGuigan. AUG 2015. *Transcriptome-wide effects of male sexual selection on the fate of new mutations*. Congress of the European Society for Evolutionary Biology, Lausanne, Switzerland.
3. **Collet J. M.**. OCT 2013. *Dissecting the Bateman gradient: What it really tells us about sex roles*. Biannual meeting of the Australasian Evolution Society, Geelong, Australia.
4. **Collet J. M.**, R. F. Dean, K. Worley, D. S. Richardson, T. Pizzari. AUG 2013. *Dissecting the Bateman gradient: What it really tells us about sex roles*. Congress of the European Society for Evolutionary Biology, Lisbon, Portugal.
5. **Collet J. M.**, S. Fuentes, J. Hesketh, K. Fowler, M. Reuter. JUL 2012. *Resolution of sexual antagonism in an experimental population of D. melanogaster*. Joint congress on evolutionary biology, Ottawa, Canada.
6. **Collet J. M.**. JAN 2008. *Seminal Fluid and fertilising efficiency in the red junglefowl*. The EGI Student Conference on Ecology and Evolution, Oxford, UK.
7. **Collet J. M.** AUG 2005. *Manipulation sexuelle de la femelle par le male: une histoire de spermatozoïdes? ("male sexual manipulation of females: a story of sperm?")*. Annual meeting of the group for the study of Biology and Population Genetics "petit pois déridé", Bordeaux, France.

ORGANISATION OF INTERNATIONAL CONFERENCES

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| JAN 2010 | Co-organiser of the EGI conference , International Ornithological conference.
Steering and Program committee.
Department of Zoology, Oxford. |
| JAN 2009 | Co-organiser of the Summer ASAB meeting , <i>The descent of man and Selection in relation to sex</i> . Steering committee.
St John's College, Oxford. |

ORGANISATION OF SEMINAR SERIES

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| 2012 | Organiser of the departmental "pre-pub" Friday regular seminar series .
Department of Genetics, Environment and Evolution, University College London, UK. |
| 2010-2011 | Organiser of the departmental journal club on evolution
Department of Genetics, Environment and Evolution, University College London, UK. |

INVITED REVIEWER

Journals for Proceedings of the National Academy of Sciences of the United States of America, Proceedings of the Royal Society B: Biological Sciences, Evolution, The American Naturalist, Behavioural Ecology, BMC Evolutionary Biology, Scientific Reports, Journal of Insect Science, and Evolutionary Applications
Grants for the National Science Foundation award

PROFESSIONAL MEMBERSHIP

SINCE 2009	Member of the European Society for Evolutionary Biology.
2012	Member of the Australasian Evolution Society.
SINCE 2016	Member of the Molecular Biology and Evolution.

MAIN COLLABORATORS

Dr Patrice David, CEFÉ, CNRS, France
Dr Simon Fellous, CBGP, INRA, France
Prof. Mark Blows, University of Queensland, Australia
Prof. Tommaso Pizzari, University of Oxford, UK
Dr. Max Reuter, University College London, UK
Dr. Allan Debelle, CBGP, INRA, France
Prof. Francis Jiggings, Cambridge, UK
Dr. Alexandre Leitao, Cambridge, UK
Dr. Katrina McGuigan, University of Queensland, Australia
Prof. Kevin Fowler, University College London, UK
Dr Steve Chenoweth, University of Queensland, Australia
Dr Ted Morrow, University of Sussex, UK
Prof. Adam Chippindale, Queen's University, Canada
Dr Rebecca Dean, University College London, UK
Prof. David Richardson, University East Anglia, UK

LANGUAGES

FRENCH	Native language
ENGLISH	Bilingual
SPANISH	Advanced
GERMAN	Basic