

Curriculum Vitae

Julien Foucaud

Research Ingeneer in Ecology and Evolutionary Biology

Born June, 24th 1980, in Paris, France.

Nationalities: French, Swiss.

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EDUCATION & RESEARCH

- 2013- **Research Ingeneer position:** *Harmonia axyridis* quantitative genetics & genomics.
Phenotyping platform supervisor
Lab: Centre de Biologie et de Gestion des Populations (CBGP), Montpellier, France.
- 2012 **Postdoctoral position:** *Estimating population structure and selection signals in native
Harmonia axyridis populations via RAD sequencing.*
Supervisor: Arnaud Estoup
Lab: Centre de Biologie et de Gestion des Populations (CBGP), Montpellier, France.
- 2011-2012 **Postdoctoral position:** *Emergence of a phenologic mutant population in the invasive
Pine processionary moth (Thaumatopeae pityocampa).*
Supervisor: Carole Kerdelhué
Lab: Centre de Biologie et de Gestion des Populations (CBGP), Montpellier, France.
- 2009-2011 **Postdoctoral position:** *Evolution of cognitive abilities in the Drosophila genus*
Supervisor: Frederic Mery
Lab: Laboratoire Evolution Genomes Speciation (LEGS, CNRS), Gif-sur-Yvette, France.
- 2008 **Postdoctoral position:** *Invasiveness, thermotolerance and Hsp expression in clonal
and sexual populations of Wasmannia auropunctata*
Supervisor: Arnaud Estoup
Lab: Centre de Biologie et de Gestion des Populations (CBGP), Montpellier, France.
- 2004-2007 **PhD** in Evolutionary Biology & Ecology.
*Evolutionary biology of an invasive ant species with an unusual reproduction system,
Wasmannia auropunctata*
Supervisor: Arnaud Estoup (CBGP, INRA) and Finn Kjellberg (CEFE, CNRS)
Lab: Centre de Biologie et de Gestion des Populations (CBGP), Montpellier, France.
- 2000-2004 **Engineer Degree in Agronomy & Life Sciences:** at AgroParisTech, Paris, France.

TECHNICAL SKILLS & SUPERVISION OF STUDENTS

- Population genetics, phylogenetics, gene expression analysis skills, NGS data experience.
 - Behavioral studies with various insect species (Drosophila, ants, honey bees).
 - Basic modelling, statistical, bioinformatics & programming skills.
 - Field experience in tropical forests (Guiana, Brazil, New Caledonia).
 - Molecular tools (PCR, sequencing, genotyping, construction of microsatellite library, RT-qPCR, construction of Restriction-Associated DNA (RAD) sequencing libraries)
- 4 supervisions of students: 1 BSc (6 months), 2 MSc (6 months), and 1 PhD (1 month).

CONFERENCE CONTRIBUTIONS

- 2012** *Where do adaptive shifts occur during invasions? The case of adaptation to hot and cold habitats in an invasive ant going global.* Oral contribution. 1st Joint Congress in Evolution, Ottawa, Canada.
- 2011** *Transcriptional effects of parental age in the *Drosophila melanogaster* brain: linking a non-genetically transmitted effect to its genetic targets.* Small poster contribution. Biannual meeting of the ESEB, Tübingen, Germany.
- 2010** *a Morris water maze for *Drosophila*.* Oral contribution. ESF-EMBO conference: Functional Neurobiology in minibrains: from flies to robots and back again. Sant Feliu de Guixols, Spain.
- 2010** *The Heat maze: a Morris water maze for *Drosophila*.* Poster contribution. Gordon Research Conference: Genes & Behavior. Ventura, CA, U.S.A.
- 2009** *Intraspecific variability of learning and memory in *Drosophila*.* Poster contribution. Insect learning and memory workshop, Roscoff, France.
- 2009** *Evolutionary consequences of an unusual reproduction system? Genomic clues to an habitat transition in the Little Fire Ant.* Poster contribution. Biannual meeting of the ESEB, Torino, Italy.
- 2008** *The non-paradoxical invasion of the World tropics by the little fire ant: introduction routes and evolutionary paths.* Oral contribution. Neobiota: Towards a synthesis. 5th European Conference on Biological Invasions, Prague, Czech Republic.
- 2008** *Sex and clonality in the little fire ant, *Wasmannia auropunctata*.* Poster contribution. XXXth PPD Annual Congress of the French Genetical Society, Rennes, France. Winner of the 3rd poster prize.
- 2008** *Sex and clonality in the little fire ant, *Wasmannia auropunctata*.* Poster contribution. Annual Meeting of the Society of Molecular Biology and Evolution (SMBE), Barcelona, Spain.
- 2007** *Factors of the little fire ant invasiveness in its native range.* Oral contribution. IInd French Congress on Biological Invasions & Life-History Traits, Rennes, France.
- 2007** *Sex and clonality in the little fire ant, *Wasmannia auropunctata*.* Oral contribution. Colloquium of the French Section of the International Union for the Study of Social Insects, Toulouse, France.
- 2006** *Genetic structure and reproductive modes in invasive populations of the little fire ant.* Oral contribution. XVth Congress of the International Union for the Study of Social Insects, Washington D.C., U.S.A.

REVIEWER

Molecular Biology & Evolution, Evolutionary Applications, Naturwissenschaften, Insectes Sociaux, Biological Letters.

PUBLICATIONS

- #22.** Cruaud A., M. Gautier, M. Galan, **J. Foucaud**, L. Sauné, G. Genson, E. Dubois, S. Nidelet, T. Deuve, J.-Y. Rasplus (2014) *Empirical assessment of RAD sequencing for interspecific phylogeny.* Molecular Biology and Evolution. Accepted.
- #21.** Rey, O., B. Facon, **J. Foucaud**, A. Loiseau & A. Estoup. (2013) *Androgenesis is a maternal trait in the invasive ant *Wasmannia auropunctata*.* Proceedings of the Royal Society B-Biological Sciences. 280:20131181.
- #20.** Gautier, M., **J. Foucaud**, K. Gharbi, T. Cezard, M. Galan, A. Loiseau, P. Pudlo, C. Kerdelhué & A. Estoup. (2013) *Estimation of population allele frequencies from next-generation sequencing data: pooled versus individual genotyping.* Molecular Ecology. 22 : 3766-3779.
- #19.** **Foucaud, J.**, A.-S. Philippe, C. Moreno & F. Mery. (2013) *A genetic polymorphism affecting reliance on personal versus public information in a spatial learning task in *Drosophila melanogaster*.* Proceedings of the Royal Society B-Biological Sciences. 280 : 20130588.
- #18.** Rey, O., A. Estoup, B. Facon, A. Loiseau, A. Aebi, O. Duronx, F. Vavre and **J. Foucaud**. (2013) *Distribution of endosymbiotic reproductive manipulators reflects invasion process and not*

reproductive system polymorphism in the little fire ant Wasmannia auropunctata. PLoS One. 8(3) : e58467.

- #17. **Foucaud, J.**, O. Rey, S. Robert, L. Crespin, J. Orivel, B. Facon, A. Loiseau, H. Jourdan, M. Kenne, P.S.M. Masse, M. Tindo, M. Vonshak & A. Estoup. (2013) *Thermotolerance adaptation to human-modified habitats occurs in the native range of the invasive ant Wasmannia auropunctata before long-distance dispersal*. Evolutionary Applications. doi: 10.1111/eva.12058.
- #16. Gautier, M., K. Gharbi, T. Cezard, **J. Foucaud**, C. Kerdelhué, P. Pudlo, J.-M. Cornuet & A. Estoup. (2013) *The effect of RAD allele dropout on the estimation of genetic variation within and between populations*. Molecular Ecology. 22 :3165–3178.
- #15. Rey, O., A. Estoup, M. Vonshak, A. Loiseau, S. Blanchet, L. Calcaterra, L. Chifflet, J.-P. Rossi, G. Kergoat, **J. Foucaud**, J. Orivel, M. Leponce, T. Schultz & B. Facon. (2012) *Where do adaptive shifts occur during invasion? A multidisciplinary approach to unravelling cold adaptation in a tropical ant species invading the Mediterranean zone*. Ecology Letters 15:1266-1275.
- #14. Tindo, M., P.S. Mbenoun Masse, M. Kenne, R. Mony, J. Orivel, A. Doumtsop Fotio, A. Fotso Kuate, C. Djiéto-Lordon, A. Fomena, A. Estoup, A. Dejean & **J. Foucaud**. (2012) *Current distribution and dynamic of the little fire ant supercolony in Cameroon*. Insectes Sociaux. 59: 175-182.
- #13. Hufbauer, R. A., B. Facon, V. Ravigné, J. Turgeon, **J. Foucaud**, C. E. Lee & A. Estoup. (2011) *Anthropogenically-Induced Adaptation to Invade (AIAI): Contemporary adaptation to human-altered habitats within the native range can promote invasions*. Evolutionary Applications. 5: 89–101.
- #12. Rey, O., A. Loiseau, B. Facon, **J. Foucaud**, J.M. Cornuet, S. Robert, J. Orivel, J. H. C. Delabie, C. Mariano & A. Estoup. (2010) *Meiotic recombination dramatically decreased in thelytokous queens of the little fire ant and their sexually produced workers*. Molecular Biology & Evolution. 28: 2591-2601.
- #11. Burns, J. G., **J. Foucaud** & F. Mery. (2010) *Costs of memory: lessons from “mini” brains*. 2010. Proceedings of the Royal Society B-Biological Sciences. 278: 223-229.
- #10. **Foucaud, J.**, J. G. Burns & F. Mery. (2010) *Use of spatial information and search strategies in a water maze analog in Drosophila melanogaster*. PLoS One. 5(12): e15231.
- #9. **Foucaud, J.**, A. Estoup, A. Loiseau, O. Rey & J. Orivel. (2010) *Thelytokous parthenogenesis, male clonality and genetic caste determination in the little fire ant: new evidence and insights from the lab*. Heredity 105: 205-212.
- #8. **Foucaud, J.**, J. Orivel, A. Loiseau, J. H. C. Delabie, H. Jourdan, D. Konghouleux, M. Vonshak et al. (2010) *Worldwide invasion by the little fire ant: routes of introduction and eco-evolutionary pathways*. Evolutionary Applications, 3: 363-374.
- #7. **Foucaud, J.**, D. Fournier, J. Orivel, J. H. C. Delabie, A. Loiseau, J. Le Breton & A. Estoup. (2009) *Reproduction system, social organization, human disturbance and invasive success in native populations of the little fire ant, Wasmannia auropunctata*. Molecular Ecology 18:5059-5073.
- #6. Vonshak, M., T. Dayan, **J. Foucaud**, A. Estoup, & A. Hefetz. (2009) *The interplay between genetic and environmental effects on colony insularity in the clonal invasive little fire ant Wasmannia auropunctata*. Behavioral Ecology and Sociobiology 63:1667-1677.
- #5. Orivel, J., J. Grangier, **J. Foucaud**, J. Le Breton, F.-X. Andres, H. Jourdan, P. Cerdan, A. Estoup & A. Dejean. (2009) *Ecologically heterogeneous populations of the invasive ant Wasmannia auropunctata within its native and introduced ranges*. Ecological Entomology 34:504-512.
- #4. **Foucaud, J.**, D. Fournier, J. Orivel, J. H. C. Delabie, A. Loiseau, J. Le Breton, G. J. Kergoat & A. Estoup. (2007) *Sex and clonality in the little fire ant*. Molecular Biology & Evolution 24:2465-2473.

- #3. **Foucaud, J.**, H. Jourdan, J. Le Breton, A. Loiseau, D. Konghouleux & A. Estoup. (2006) *Rare sexual reproduction events in the clonal reproduction system of introduced populations of the little fire ant*. *Evolution* 60:1646-1657.
- #2. Fournier, D., A. Estoup, J. Orivel, **J. Foucaud**, H. Jourdan, J. Le Breton, & L. Keller. (2005) *Clonal reproduction by males and females in the little fire ant*. *Nature* 435:1230-1234.
- #1. Fournier, D., **J. Foucaud**, A. Loiseau, S. Cros-Arteil, H. Jourdan, J. Orivel, J. Le Breton, J. Chazeau, A. Dejean, L. Keller & A. Estoup. (2005) *Characterization and PCR multiplexing of polymorphic microsatellite loci for the invasive ant *Wasmannia auropunctata**. *Molecular Ecology Notes* 5:239-242.

In Prep. Manuscripts :

Foucaud, J., E. Rezende, M. Pascual, R., Huey, P. Gibert and F. Mery. *About plasticity and invasion: learning and memory in native and introduced *Drosophila subobscura**. In Prep.