# Caroline Fromont

Hawkesbury Institute for the Environment
Western Sydney University
R2-G61 Hawkesbury Campus
Locked Bag 1797, Penrith NSW 2751, Australia

Phone: + 61(0) 2 4570 1014
Mobile: + 61 (0) 4 2364 2442
c.fromont@uws.edu.au
Website: carolinefromont.github.io

## EDUCATION

**Hawkesbury Institute for the Environment, Western Sydney Uni, Australia** — 02/2013-present
Ph.D. Candidate in Molecular Ecology
Supervision: James Cook, Markus Riegler

**University of Lyon, France** — 2011-2012
M.sc in Geography — Interface Nature and Societies

**Agrocampus Ouest, Rennes, France** — 2008-2011
M.sc in Agronomy — Crop Protection and Environment

**Lycee Jean-Baptiste Say, Paris, France** — 2006-2008
Preparatory classes (equivalent to an undergraduate degree) -
Majors in Biology and Chemistry, minors in Physics and Mathematics

## PROFESSIONAL EXPERIENCES

**University of Western Sydney, Australia** — 2014-2015

Demonstrator, Invertebrate Biology

**Hawkesbury Institute for the Environment, Western Sydney Uni, Australia** — 02/2013-present

"Australian psylloids in complex interactions : species, populations, parasitoids and endosymbionts"

Fieldwork | DNA extraction and sequencing | Phylogeny | NGS: shotgun and 16S amplicon sequencing | Population genetics | Biogeography

Supervision: James Cook, Markus Riegler

**INRA and YNSECT, Versailles, France** — 03/2012-10/2012

"Optimization of diets given to insects (*Tenebrio molitor* and *Hermetia illucens*) for protein production for animal and human consumption"

Identification industry by-products | Insect rearing | Feeding assay

Supervision: Frederic Marion-Poll (INRA), Antoine Hubert (Ynsect)

**IRD/ICIPE, Nairobi, Kenya** — 03/2011-09/2011

"Study of potential gene flow of Kenyan populations of *Busseola fusca*, focus on some dispersal and reproductive aspects"

Fieldwork | Study of flight in wind tunnel | Controlled crosses

Supervision: Pascal Campagne, Bruno Le Ru

**Museum National d'Histoire Naturelle, Paris, France** — 08/2010

Bat monitoring in Paris

Project coordination | Bat recording

Supervision: Christian Kerbiriou

**Agroproj', Morocco** — 2009-2010

Comparison of agricultural techniques in 2 villages

Creation of the association | Interviews with farmers and locale organizations

**University of Sydney, Australia** — 08/2009-2/2010

"Influence of the macronutrient intake on *Tenebrio molitor* immune response"

Insect rearing | Diet preparation | Immune assay

Supervision: Fleur Ponton, Steve Simpson

## PUBLICATIONS

Ponton F., Lalubin F., **Fromont C**., Wilson K., Behm C., Simpson S.J. (2011) Hosts use altered macronutrient intake to circumvent parasite-induced reduction in fecundity. *International Journal of Parasitology* 41 (1) 43-50

**Fromont C**., Riegler M., Cook J.M. *(In press)* Characterisation of fourteen microsatellite markers for the Australian fig psylloid, *Mycopsylla fici*. *Australian Journal of Zoology*

## PUBLICATIONS SUBMITTED

**Fromont C.,** Riegler M., Cook J.M. *(submitted to Molecular Ecology)* Codiversification of fig psylloid insects and their microbial endosymbionts – a geographic perspective.

## GRANTS & FELLOWSHIPS

ABRS Travel Grant for Association for Tropical Biology and Conservation conference (AU$1650) — 2015

Hawkesbury Institute for the Environment Postgraduate Research Award — 2013-2016

## PRESENTATIONS

**Fromont, C**., Riegler, M., Cook, J. (Speed talk) Hidden diversity and host specificity in fig-psylloid-parasitoid interactions
Ecological Society of Australia, Alice Springs, Australia — 2014

**Fromont, C**., Riegler, M., Cook, J. (oral presentation) Insights into two colonisation events: Australian fig psylloids on Lord Howe Island and New Zealand
Association for Tropical Biology and Conservation, Honolulu, USA — 2015

## WORKSHOPS

Introduction to phylogenetic analysis
University of Sydney, Australia
Simon Ho and Sebastian Duchene — 2013

GenAlex—Genetic Analysis for population studies
Australian National University, Canberra, Australia
Rod Peakall and Peter Smouse — 2013

MEMBERSHIPS

Royal Zoological Society of New South Wales
Australian Entomological Society
Association for Tropical Biology and Conservation

RESEARCH INTERESTS

**Biogeography - Insect diversity and interaction - Dispersal and population genetics - Nutrition**

Ph.D. project : Australian psylloids in complex interactions : species, populations, parasitoids and endosymbionts

A given insect species is typically involved in interactions with several other species, as part of a wider food web (insect herbivore, host plants, parasitoids, predators). Although many species interactions are antagonistic, beneficial associations also occur and there is growing realisation of the importance of microbial endosymbionts in the lives of insects and other animals (i.e. niche accessibility, parasitoid protection). Consequently, our understanding of species interactions and food webs increasingly relies upon investigations at a range of biological levels. Moreover, different elements of the food web may have different patterns of variation in time and space with knock-on effects for species interactions and community structure. During my PhD, I am interested in understanding the relationships between the Australian fig psylloids (*Mycopsylla* spp.), their fig host, parasitoids and endosymbionts. I am using NGS and Sanger sequencing to characterize the diversity and host-specificity of the psylloids, their endosymbionts and parasitoids. In addition, I am comparing inter- and intra-specific genetic variations of the psylloids and their primary and secondary symbionts. By focusing on one species that colonized two islands (Lord Howe Island and New Zealand) probably from Australia, I also want to understand its biogeography and gene flow between populations. I am also studying the bacterial diversity present in different populations of one psylloid species.

Previous research

In general, I am interested in insect dispersal and I have explored this topic by studying the flight capacities of *Busseola fusca*, a maize pest moth, in a controlled experiment in a flight tunnel. We focussed on this species as it developed a resistance to *Bt* maize in South Africa in few years and we wanted to understand which factors (dispersal, mating preferences, ...) may be involved in the development of this resistance.

I also have a broad interest in insect nutrition. I previously did two studies on this topic. The first, at the University of Sydney, integrated insights of nutritional research in the study of immunity (especially for immune system maintenance). The second, in collaboration with Ynsect, a company that is rearing insects for animal feed and at term, for human food had for objective to identify, locate and quantify industry and restaurant wastes and to start feeding trials using those wastes.

REFEREES

**James Cook** (PhD Advisor)
Western Sydney University
+61 (0) 2 4570 1371
james.cook@westernsydney.edu.au

**Fleur Ponton** (Internship Advisor, Sydney University)
Macquarie University
Fleur.ponton@mq.edu.au

**Pascal Campagne** (Internship Advisor, ICIPE, Kenya)
University of Liverpool
Pascal.Campagne@liverpool.ac.uk