



# Alexander Piper

PHD CANDIDATE

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*Alexander Piper is a graduate student with Agriculture Victoria Research and La Trobe University whose research uses high-throughput sequencing and computational biology to improve detection and control of insect pests.*

## Education

### La Trobe University

PHD CANDIDATE

- Thesis title: Genomic tools for detection of insect pests

Melbourne, Australia

2017-Present

### Queensland University of Technology

BACHELOR OF SCIENCE (BIOLOGY)

- Biotechnology and Genetics Minor
- Chemistry Minor

Brisbane, Australia

2015

## Research experience

### La Trobe University

PHD CANDIDATE

- Developing a quantitative Metabarcoding pipeline for high-throughput identification of invasive insects within mixed trap samples.
- Using population genomics to explore the historical demography and seasonal population dynamics of a pest fruit fly.

Melbourne, Australia

2017-Present

### Agriculture Victoria Research

RESEARCH SCIENTIST (PART TIME) - COMPUTATIONAL BIOLOGY

- Analytical support for the cross-industry iMapPESTS Metabarcoding surveillance program.

Melbourne, Australia

2017-Present

### Agriculture Victoria Research

RESEARCH SCIENTIST - CHEMICAL ECOLOGY

- Utilizing microbial symbionts of horticultural pests to develop novel insect attractants.

Melbourne, Australia

2016-2017

### Queensland University of Technology

LABORATORY ASSISTANT - MICROBIAL ECOLOGY

- Isolation and physiological characterisation of environmental microbes from insects and host plants.

Brisbane, Australia

2015-2016

### Queensland University of Technology

VACATION RESEARCH SCHOLAR — MICROBIOLOGY

- Exploratory research into fungal symbionts of an agricultural pest insect funded by a university scholarship.

Brisbane, Australia

2015

### Queensland University of Technology

B.SC. CAPSTONE RESEARCH PROJECT — MOLECULAR ECOLOGY

- Developing an environmental DNA PCR assay for detection of an invasive freshwater fish species.

Brisbane, Australia

2015

### Queensland University of Technology

UNDERGRADUATE RESEARCH — PHYSIOLOGICAL GENOMICS

- Assisting a PhD student to validate transcriptomics results with qRT-PCR

Brisbane, Australia

2013-2014

## Journal articles

1. Batovska, J, A Piper, I Valenzuela, J Cunningham, and M Blacket (2019). "Developing a non-destructive metabarcoding protocol for detection of Invasive insects in bulk trap catches". (In Prep).
2. Piper, A, J Batovska, N Cogan, J Weiss, J Cunningham, B Rodoni, and ... (2019). Prospects and challenges of implementing DNA metabarcoding for high-throughput insect surveillance. *GigaScience*.
3. Piper, A, K Farnier, T Linder, R Speight, and J Cunningham (2017). Two gut-associated yeasts in a Tephritid fruit fly have contrasting effects on adult attraction and larval survival. *Journal of chemical ecology*.

## Conference talks

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### Agriculture Victoria Regional Science Conference

AN UPDATED MOLECULAR TOOLBOX FOR BIOSECURITY

*Tatura, Victoria*

2019

### AgriBio Science Conference

DETECTING THE UNEXPECTED, DNA METABARCODING FOR HIGH-THROUGHPUT INSECT SURVEILLANCE

*Melbourne, Victoria*

2018

### Victorian DNA Barcoding Workshop

QUALITY CONTROL CONSIDERATIONS FOR METABARCODING

*Melbourne, Victoria*

2018

### Australian Entomological Society Conference

DETECTING THE UNEXPECTED, DNA METABARCODING FOR HIGH-THROUGHPUT INSECT SURVEILLANCE

*Alice Springs, Northern Territory*

2018

### iMapPESTS Metabarcoding Workshop

QUALITY CONTROL CONSIDERATIONS FOR METABARCODING

*Melbourne, Victoria*

2018

### SciPlant 17

THE IMPORTANCE OF YEASTS IN THE ECOLOGY AND CONTROL OF THE QUEENSLAND FRUIT FLY

*Brisbane, Queensland*

2017

### Australian Entomological Society Conference

YEAST-INSECT INTERACTIONS IN THE QUEENSLAND FRUIT FLY (*BACTROCERA TRYONI*)

*Terrigal, New South Wales*

2017

### Biology of Tephritid Fruit Flies Meeting IV

A MICROBIAL HYPOTHESIS FOR QUEENSLAND FRUIT FLY HOST SELECTION

*Melbourne, Victoria*

2016

## Synergistic activities

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- Member of The Society for Molecular Biology and Evolution
- Member of The Australian Bioinformatics and Computational Biology Society
- Member of The Australain Entomological Society
- Participant in the Insect Genetic Technologies Research Coordination Network (IGTRCN)
- Reviewer for Journal of Economic Entomology

## References

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- **Assoc Prof. Paul Cunningham**  
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Agriculture Victoria Research  
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Email: paul.cunningham@agriculture.vic.gov.au
- **Dr. Noel Cogan**  
Senior Research Scientist  
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