

PhD Opportunity

Fruit fly responses to natural enemies

A PhD opportunity is available on a project investigating olfactory relationships between *Bactrocera* fruit flies and their natural enemies, especially predators.

Expressions of interest close at midnight on **Saturday 04 February 2017**.

Predators have a significant impact on the lives of *Bactrocera* fruit flies but little is known about how predators locate flies, and how flies counter such threats. One defence mechanism is through detection and adaptive response to chemical cues ('kairomones') either emitted directly from predators or deposited as predators move through the environment. This project will entail detailed studies of how *Bactrocera* fruit flies respond to kairomones from predators such as ants and spiders. Activities will include travel for the collection and study of fruit fly predators, bioassays to test predation and olfactory responses of flies to predators and associated emissions, qualitative analysis and identification of putative kairomones (e.g., by GC-MS), synthesis and testing of each component for verification, and bioassays of biological activity.

The successful candidate will carry out research jointly at Macquarie University in Sydney, Australia and at New Zealand Institute of Plant & Food Research at Lincoln, New Zealand. Supervision and support at Macquarie University will come from Prof Phil Taylor (Department of Biological Sciences, <http://bio.mq.edu.au/>), Dr Ian Jamie, and A/Prof Joanne Jamie (Department of Chemistry and Biomolecular Sciences, <http://cbms.mq.edu.au/>). Supervision and support at New Zealand Institute for Plant & Food Research will come principally from Prof Max Suckling. The supervision team has deep experience in diverse aspects of fruit fly biology, chemical ecology, natural products chemistry, analytical chemistry, synthetic chemistry and atmospheric chemistry. At each institution, there is also ample opportunity for additional collaboration and support as needed for project components that might require additional specialist expertise.

This project is supported by the \$3.7m Australian Research Council *Centre for Fruit Fly Biosecurity Innovation* (www.fruitflyittc.com) that has its hub at Macquarie University, and academic nodes at Queensland University of Technology and Western Sydney University. Other partners in the Centre include New Zealand Institute for Plant & Food Research (NZ PFR), New South Wales Department of Primary Industries (NSW DPI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Queensland Department of

Agriculture Fisheries and Forestry (QDAFF), and Ecogrow Environmental Pty Ltd. Collectively, these institutions bring vast expertise and research capacity to this research program, and maintain a highly collaborative research culture. Accordingly, this project will be very well supported in terms of supervision, collaborative opportunities, facilities and funding.



The successful candidate will join a large community of actively engaged researchers working on diverse aspects of fruit fly behaviour, chemistry, physiology, ecology, genomics, molecular biology, and management.

Scholarship details:

A scholarship is available to eligible candidates to undertake either:

- One-year Research Training Pathway (RTP/iRTP) Masters of Research (MRes) followed by a three-year PhD, for candidates with an Honours degree or a Masters degree that includes a minor research component. This is referred to as an MRes/PhD 'bundle offer'.

OR

- Direct entry into a 3.5 year PhD program, for candidates with a Research Masters degree that includes a substantial research component.

The value and tenure of the scholarship is:

- The ARC ITTC stipend is \$30,746 pa (2016 rate, subject to indexation, tax free) for up to four years for an MRes/PhD bundle offer or for 3.5 years for direct entry to PhD.
- International candidates successful for these scholarships are also awarded a tuition fee scholarship covering tuition fees at Macquarie University for up to four years.

To be eligible for a scholarship, applicants are expected to have a record of excellent academic performance and preferably additional relevant research experience and/or peer-reviewed research activity, awards and/or prizes in line with the University's scholarship rating guidelines. Refer to the [Rating Scholarship Applicants](#) section for more information about these guidelines.

Students on scholarships are not obliged to contribute to teaching, but may do so to supplement their income if desired. In addition to substantial financial resources to draw on for research, several generous schemes are available to fund travel to visit overseas laboratories or to attend overseas conferences.

Enquiries are welcome, and interested applicants are encouraged to make initial informal contact before applying. Interested applicants should email a letter of interest, academic transcripts, curriculum vitae and the names and contact information of three referees to Prof Phil Taylor (Phil.Taylor@mq.edu.au).

Expressions of interest close at midnight on **Saturday 04 February 2017.**