

# Parasitoids: another part of the fruit fly management arsenal

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**SITplus**

## BACKGROUND

Fruit fly natural enemies are a key component of successful area-wide management. The most important natural enemies of Queensland fruit fly are parasitic wasps of the family Braconidae. In Australia we have a dozen native parasitoid species which cause anywhere from 10 to 80% fruit fly mortality, depending on location and crop type. Internationally, parasitoids have been reared along with fruit flies in SIT factories, and then released along with SIT flies. Theoretical modelling has shown that the simultaneous release of SIT flies and parasitoids provides better control than either technique on its own.



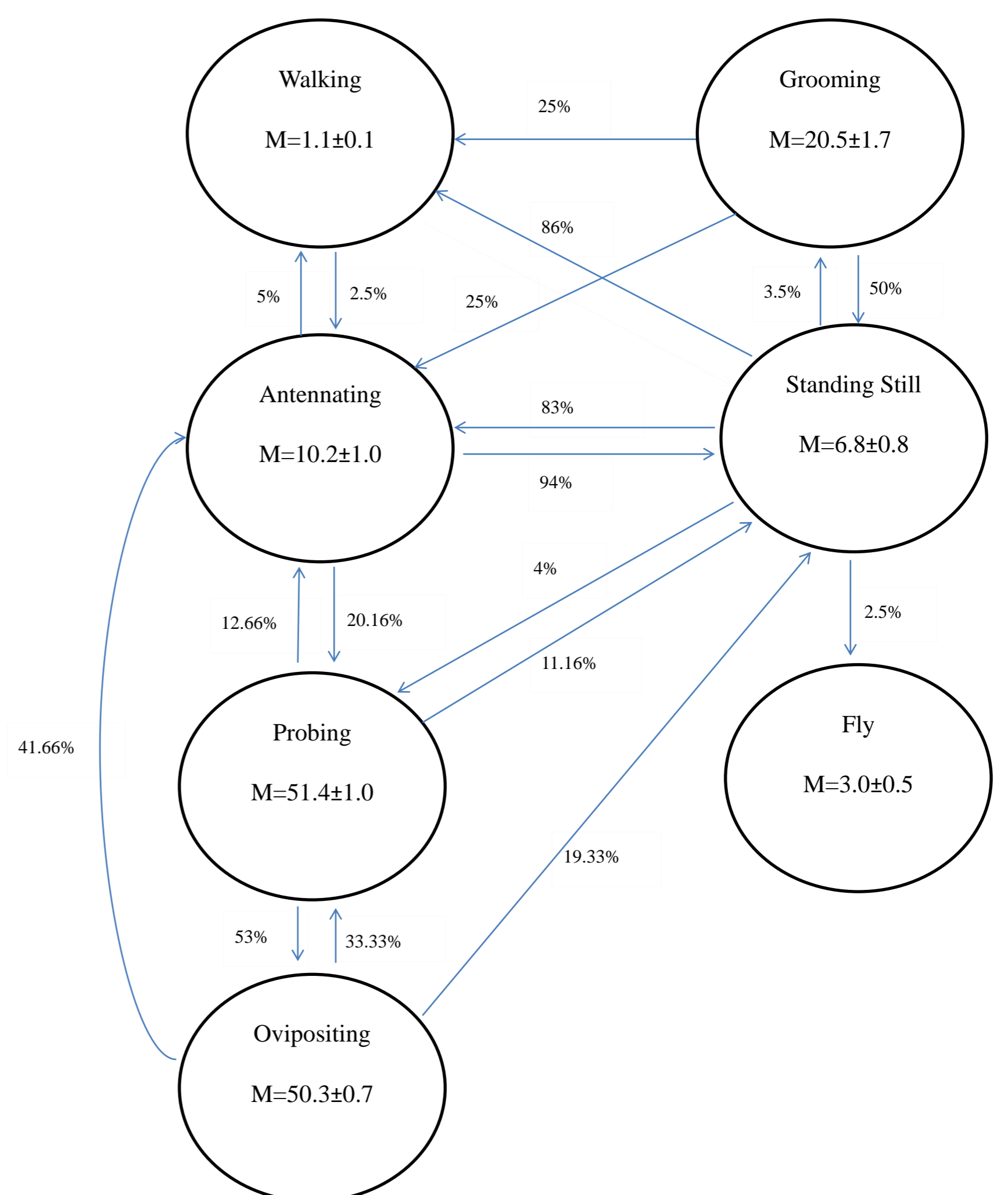
*Diachasmimorpha kraussii* is a polyphagous fruit fly larval parasitoid recorded from 17 fruit fly species. It is distributed from north-eastern mainland Australia to inland central New South Wales

## PROJECT

Nearly all research on fruit fly parasitoids has been undertaken in small laboratory cages and very little is known how parasitoids survive and locate their hosts in complex field environments. In this PhD project, research is being undertaken on the parasitoid *Diachasmimorpha kraussii* to understand its survival and host location in the 'real world'. Work is focusing on wasp diapause, host utilisation when the wasp is in different physiological states (e.g. hungry or host deprived), and where the wasp locates itself in the environment.

## OUTCOMES

The results of this project will support area-wide management by adding another tool to the fruit fly area-wide management toolbox. Research capacity will also be enhanced through the education of a researcher with expertise in fruit fly biological control.



Ethogram of *D. kraussii* searching on apple infested with Q-fly larvae. The figure next to the arrow represents the percentage of transitions from given behavioral events. M denotes the mean ( $\pm$ SE) duration in seconds for the given behavior