



## PhD Exit Seminars

### Michael Whitehead & Natalie Schmitt

Thursday 2 August 2012 1pm

---

Gould Seminar Room (Room 235) Gould building, 116 Daley Road, ANU



**Wasp love got to do with it? The evolutionary implications of sexual mimicry in orchids.**  
**Michael Whitehead, Division of Evolution, Ecology & Genetics, RSB**

Most flowering plants engage animals to carry out the essential service of pollination. The majority of these plants have evolved flowers that advertise rewards for this service via visual and chemical cues such as petals and scent. There are however a number of species whose false advertisements draw pollinators to rewardless flowers. Among them are the sexually deceptive orchids which employ a precise chemical mimicry of female wasp sex pheromones to attract male wasps for pollination.

I present results from a multidisciplinary PhD project on two sympatric taxa of sexually deceptive orchids. My research shows that the chemical mimicry crucial to sexual deception is responsible for reproductive isolation and potentially even speciation. I also show through mating system analysis and studies of wasp behaviour that this strategy is a superbly adaptive solution to the problem flowers face of simultaneously attracting pollinators before persuading them to leave quickly.



**Patterns of population structure in Australian and South Pacific humpback whales**  
**Natalie Schmitt, Division of Evolution, Ecology & Genetics, RSB**

Utilising both mitochondrial and nuclear genetic markers, my thesis examined the population structure and distribution of humpback whales (*Megaptera novaeangliae*) that migrate to separate winter breeding grounds along the north-western and north-eastern coasts of Australia, and their interaction with the endangered populations of the South Pacific. The project investigated three structural parameters: population structure among putative breeding populations, evidence for sex-specific migration along migratory corridors and the mixing of breeding populations on high latitude Antarctic feeding grounds. The thesis also reports the discovery and utility of novel nuclear genetic markers (single nucleotide polymorphisms, SNPs). These markers hold promise for facilitating more effective multi-laboratory collaboration.

For the purpose of this talk, I will focus on the results of the mixing of Australian and South Pacific breeding populations on the Antarctic feeding grounds.

Presented by  
Research School of  
Biology  
ANU College of  
Medicine, Biology  
& Environment