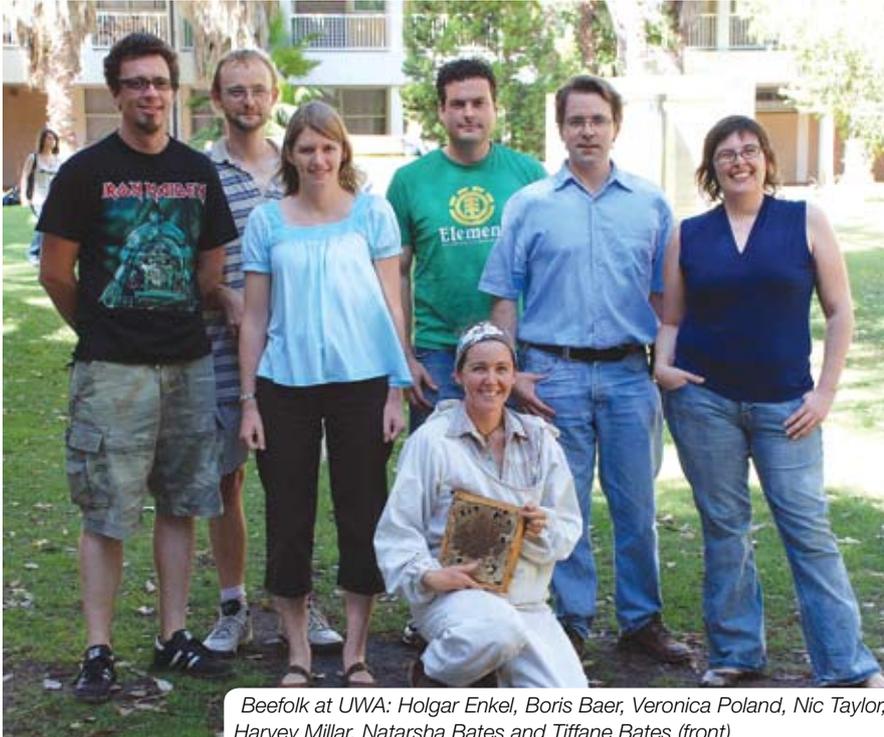


# Queen-maker mixes **mystique**

*and*

# **science**



*Beefolk at UWA: Holgar Enkel, Boris Baer, Veronica Poland, Nic Taylor, Harvey Millar, Natarsha Bates and Tiffane Bates (front)*

by Sally-Ann Jones

**She is the queen of two realms – the mystical, ancient world of beekeeping and the hard-nosed domain of innovative science. Yet 33 year-old Tiffane Bates, who works for one of only two *Apis mellifera* queen-producing companies in the State, is comfortable in both.**

At UWA to deliver a lecture entitled “Have we Killed the Romance: Queen Raising in the Modern Age”, she was more than happy to talk about the mysterious queens she loves.

One of the researchers with whom Ms Bates collaborates is Dr Boris Baer, a QEII Fellow whose work links Plant Energy Biology and Animal Biology.

Together they share the quest to understand reproduction in social insects – the bees, ants and wasps. Dr Baer uses several interconnected approaches such as proteomics and metabolomics to analyse sperm and gland secretions that both males and females add to sperm. He hopes to identify those proteins instrumental in the prolonged sperm storage of which a queen bee is capable – up to six years after a single mating event early in her life.

Dr Baer also hopes to unravel the sophisticated interactions between the

20 or so ejaculates the female receives during her nuptial flight. One aim of this work is to discover if there is sexual selection via sperm competition and/or cryptic female choice in honeybees.

Ms Bates’ interest in bees is in her blood. Her great-grandfather was a beekeeper in New Zealand in the 1920s. She also has a science degree and a hungry mind that keeps asking why. “The more you find out about bees, the more questions there are,” she says.

Boss Lady Queens is the name of the queen-breeding business started by Ron Clark, with whom Ms Bates works.

Whether she is describing the queen’s flight to a special location for her courtship dance, her murderous ploys to kill off all rival virgin queens, or her mysterious ability to potentially select some of her lovers as fathers, Ms Bates could be an author of historical romance, outlining her latest story-line.

Although she relishes the drama of queen-rearing, hers is a profession of utmost importance, particularly with the deadly *Varroa* mite decimating bee populations around the world, except in Australia.

Without bees, humans would have less food – so understanding the science behind maintaining healthy populations is crucial.

Ms Bates, who breeds queens via artificial insemination techniques, selects for three main qualities: temperament, because beekeepers prefer placid bees; hive behaviour, because bees that keep their hives clean tend to have less disease; and honey production.

Mr Clark exports many of Ms Bates’ queens live, to destinations as far afield as Jordan and Tahiti, in specially created boxes that contain food for the journey and, sometimes, a contingent of escort worker bees to keep them warm.



*Tiffane Bates in the UWA beeyard*