Submission to Inquiry into the Future Development of the Australian Honey Bee Industry

Parliament of Australia
House of Representatives
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Re: Terms of Reference 6: Research and Development Needs of the Industry

The development of alternative pollinators, such as native bee species, should have high priority in the future research and development of the honey bee industry.

Agriculture in Australia is highly dependant on pollination by the introduced honey bee, *Apis mellifera* (Cunningham et al 2002). Events overseas are highlighting the current vulnerability of honey bees to destructive pests and diseases. For example:

- The Varroa Mite, *Varroa destructor*, has caused major declines in feral and managed honey bee populations in many overseas countries (Oldroyd 1999, Anderson and Trueman 2000). This mite has already become established close to Australia, in New Zealand.

- The South African Small Hive Beetle, *Aethina tumida*, caused a loss of 20,000 commercial honeybee hives in Florida in the two years following its introduction there. This beetle has already become established in eastern Australia (Gillespie et al 2003) though its spread to date has been limited by persistent drought conditions.

- Little understood factors known as 'Colony Collapse Disorder' have also recently been causing severe and widespread losses of honey bees in USA and Germany.

It is urgent that alternative pollinators be developed in Australia to support Australian agriculture in the likely event that our honey bees are impacted by pests and diseases such as those listed above.

Introducing additional non-native pollinators to Australia such as the European bumble bee, *Bombus terrestris*, poses serious and, in our opinion, unacceptable environmental risks (Hingston and McQuillan 1998, Hingston et al 2002). A better option would be to develop alternative pollinators from our native insect species.

Suitable alternative pollinators amongst our Australian native species include the following:

- The stingless social bees, *Trigona* and *Austroplebeia*, show considerable potential for both field and greenhouse crops (Heard 1999). They can be effectively hived and transported (Heard and Dollin 2000). They have already proven successful with the pollination of Australian field crops such as macadamia, watermelon and lychee, and their short flying range makes them especially suited for greenhouse environments. Research on the use of stingless bees for pollination of greenhouse capsicums is currently in progress by PhD student Mark Greco, at the University of Western Sydney - Hawkesbury.

- Native blue banded bees, *Amegilla*, show great potential for the pollination of greenhouse tomatoes according to research at the University of Western Sydney (Bell et al 2006) and the University of Adelaide (Hogendoorn et al 2006).

- Leafcutter bees and resin bees, *Megachile*, could also be valuable pollinators for crops such as lucerne and almonds.

- Other groups of insects also show potential for pollination of agricultural crops such as Nitidulid beetles (custard apple) and hawkmoths (papaya).

The main constraint on the use of these Australian native alternative pollinators is a lack of research into their husbandry and effectiveness.

Given the serous threat posed by exotic pests and diseases to honey bees in Australia, it is urgent that research and development funds be allocated to the development of alternative native insect pollinators in Australia.

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