

# Bees warm up with a drink, too

August 18 2010

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When we venture out on a cool morning, nothing energises our body like a nice warm drink and new research reveals that bees also use the same idea when they're feeling cold.

A study by insect scientists Drs Melanie Norgate and Adrian Dyer shows that bees also like to keep winter at bay with a warm drink.

The Monash University research, published in the prestigious journal *PLoS One*, has shown that important [pollinators](#) of many of our flowers, native Australian stingless bees, warm up their bodies by having a 'hot' drink on a cool day - or a 'cool' drink in warmer weather.

Working with collaborators from Monash University and the CSIRO, the researchers showed that at a range of ambient temperatures (23-30°C) bees displayed a significant preference for feeding from artificial flowers that presented nectar-like solution that was warmer than the ambient temperature.

"The bees perceived warmth as an important reward in addition to the nutritious [nectar](#) that they collect from flowers. However, surprisingly for the research team, when the [ambient temperature](#) reached 34°C, the bees began preferring a cooler feeder," Dr Dyer said.

"The study showed that just as a person might choose which type of drink to have depending on the weather, the bees also made a decision on their drink, based on what flowers might offer nectar at the ideal temperature for the particular climatic conditions."

The researchers then measured the body temperature of bees after they had ingested warm liquid nectar.

"The bees' preference for warm liquid was then examined by using special infrared cameras that recorded the body temperature of bees whilst resting, flying, or drinking nectar of different temperatures. The thermal images revealed an interesting pattern as the warm nectar helped bees maintain a body temperature (30-34°C) that is likely to be required by insects to maintain active flight," Dr Dyer.

"Choosing nectar of various temperatures appears to be a novel behavioural mechanism bees use to maintain the most suitable body temperature for flight," Dr Norgate said.

Future work will concentrate on understanding what flower features enable plants to modulate the temperature of their flowers to present rewards to pollinating insects, and how this may be important for the distribution of flowers in different regions where [climatic conditions](#) like temperature are variable or changing.

Provided by Monash University

Citation: Bees warm up with a drink, too (2010, August 18) retrieved 24 April 2024 from <https://phys.org/news/2010-08-bees.html>

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