



Ancient fig wasp

The oldest known fossil fig wasp has been unearthed – mislabelled in a storeroom at London's Natural History Museum. Collected from the Isle of Wight in 1920, the specimen is high-identical to modern species, revealing that the insect has barely changed in 34 million years.



Dating game

Mother bonobos *Pan paniscus* help their sons 'score' with the ladies. They prevent the highest-status males from monopolising the females, giving their boys a shot at love. They even go so far as to attack rivals who try to disrupt sons engaged in mating.

Martin Harvey/NHPA

NEWS OF THE EARTH

IN BRIEF

BACTERIAL SACRIFICE

If a population of *Escherichia coli* encounters a new antibiotic, a few highly resistant mutants release a chemical that helps to safeguard the vulnerable masses. It's an altruistic act – the bacteria expend so much energy that they may die prematurely, risking their own survival to save others. The discovery could lead to better antibiotics (Nature, vol 467, pp82–6).

REMODELLED RIVER LIFE

Dams are literally reshaping fish by removing the swift flow to which their bodies are adapted. For example, the blacktail shiner *Cyprinella venusta* in the south-east of the US has a plumper profile, smaller head and shorter dorsal fin in rivers with dams than in free-flowing streams (Biol. Letters, doi:10.1098/rsbl.2010.0401).

AMOROUS AMPHIBIANS

When a male red-legged salamander *Plethodon shermani* courts a female, he releases a pheromone that quiets her appetite. This may reduce her drive to hunt and thus shift her attention to mating. Importantly, the 'spell' does not affect his love interest's faculties – she can still detect threats efficiently and run away quickly (Anim. Behaviour, vol 78, pp1421–5).



David M Dennis/OSF/Photoblibrary.com

Peter Oostendorp/australiebee.com.au



Choosy stingless bees use flower nectar to keep their body temperature at just the right level.

Hot bees crave cold drinks

The newest buzz on bees: they use drinks to warm up and chill out.

For the Australian stingless bee *Trigona carbonaria*, a flower's nectar is like a hot tea or a cold beer, depending on the weather.

The temperature of a flower depends on a host of factors, such as whether it grows in a sunny or shaded area. Some species also generate heat and have ways of cooling themselves off. Hence, the temperature of the nectar inside flowers may vary even among blossoms on the same plant. Could this affect insect foraging?

To find out, a team of scientists led by Adrian Dyer, from Monash University in Australia, offered identical samples of nectar to a group of bees in a climate-controlled setting in their lab. Using artificial flowers attached to miniature heaters, they served

up two options: nectar that was warmer than the air or at air temperature, which they also varied. They filmed the scene with heat-imaging cameras.

Their sweet-toothed subjects made a beeline for warm elixirs under mild conditions, but chose the cooler drinks when the lab was hot. It turns out that the insects' preference switches abruptly once the air temperature exceeds their optimal body temperature – approximately 32°C.

Essentially, the stingless bee takes a warming drink when it is chilly, but seeks out a cold one when feeling overheated.

This study is the first report of an insect using food in a dynamic way to regulate its thermal state. The findings suggest that warmer weather could have a major impact on pollinator preference and thus plant survival.

HOT SHOTS

- » Insects warm up as they fly, but start to cool as soon as they land. In this study, bees that drank warm nectar on cool days maintained an elevated body temperature during downtime.
- » Many insects visit the warm interior of flowers for a similar reason. Floral heat helps to keep their flight muscles warm, enabling them to stay active longer.
- » This is the first case of an insect using a flower to cool off, proving that warmer options aren't always best.
- » Blooms have many ways to warm up, from tracking the sun's path across the sky to creating heat through biochemical reactions.
- » Flowers sweat to cool off. Some also have petals shaped to partially shade themselves from direct sun.

SOURCE: PLoS ONE, vol 5, e12000 LINK: <http://australianmuseum.net.au/stingless-bee>