

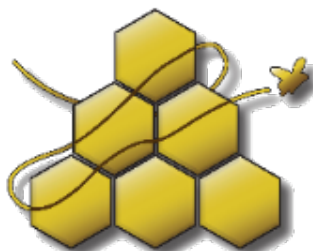
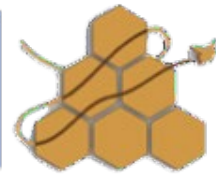
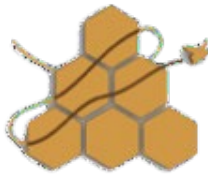


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LATEST NEWS

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AHPAnet.com



***American Honey
Producers Association***

Donating to the antidumping fund is classified as legal fees for your business and qualifies as a business expense!

The good fight isn't over yet We still need your support

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To donate to the Antidumping Fund, please contact

Cassie Cox: cassie@ahpanet.com

281-900-9740

Or donate on our secure website: <https://www.ahpanet.com/donations-1>



Agricultural Wage Survey

Every year, the EDD conducts an online statewide survey for Apiary employers who hire U.S. domestic workers to perform Beekeeping work. The purpose of this survey is to collect data on wages paid to U.S. Domestic workers who perform beekeeping work. The data collected for this survey is reported to the Department of Labor and is used to establish the California prevailing wage rate for beekeepers in the Foreign Labor Certification (H-2A) Program.

Any responses to the survey are kept strictly confidential. Any identifying information, such as employer name and address will be removed from any reports of the survey results. The survey will be open from April 20th through May 25th.

Survey Link: <http://s.alchemer.com/s3/2022BEE-A>



Millions of Alaska-bound honeybees die at Atlanta airport

April 27, 2022 by [Sabine Poux, KDLL - Kenai](#)



Hundreds of pounds of honeybees were set to ship from the Lower 48 to beekeepers across Alaska last weekend, but died in transit when the crates carrying them were left for hours on a hot tarmac in Atlanta.

Soldotna beekeeper Sarah McElrea said the loss is devastating. She runs Sarah's Alaska Honey and also teaches classes and coordinates shipments of bees to beekeepers around Alaska.

On Sunday, she was waiting at the Anchorage airport for a shipment of 800 pounds of bees from a distributor in Sacramento, California. It was the first of two shipments that she had ordered on behalf of more than 300 Alaskan beekeepers.

"We had a load that was going to Fairbanks, and then we had somebody else that was going to distribute from Wasilla to Talkeetna," she said. "And then we were going to do Anchorage and the Valley. And then our second one would've come in the following day, and we would've

taken that one back down to the Peninsula to fulfill the rest of our orders.”

But the plan hit a snag when the bees were pushed from the original Delta flight. Instead, the airline rerouted them to Atlanta, where they were supposed to catch a direct flight to Anchorage.

When they didn't make that flight, McElrea really started to worry. Honeybees don't do well in extreme heat. McElrea asked that the bees be put in a cooler.

But the next day, the airline told her some bees had escaped from their crates and so Delta put them outside.

“I really panicked when they found they had moved them outside because the pheromones that those honeybees emit are attractive to other honeybees that are native to the area,” she said.

Sure enough, outside bees gathered around the crate, so it looked like more bees were escaping.

McElrea said Delta refused to put the shipment on the plane. So she turned to the internet for help.

“I got on Facebook and made a quick post to a page that is based in Georgia,” she said.

That's how she connected with Atlanta beekeeper Edward Morgan. He went to the airport to take a look and found most of the bees in the shipment were already dead from the heat. McElrea said it was 80 degrees in Atlanta that day.

The only thing left to do was to rescue the survivors. Morgan called in reinforcements to open the crates and save whatever individual bees were left.

Gina Galucci with the Georgia Beekeepers Association was one of the dozen-plus volunteers that beelined for the airport. She told [WABE's Emily Wu Pearson](#) Sunday that they understood the urgency of the situation.

“This is a disaster,” Galucci said. “So while we did mobilize very, very quickly, we did that because we know they’re going to die. And so the person who bought these bees is out a whole lot of money. So we’re going to try to help support with some donations toward that.”

McElrea said these last few days have been a nightmare. She’s scrambling to patch up the mess and hasn’t slept much.

She said the beekeeping business has never been about money for her. Still, she said it’s an incalculable loss.

She said her supplier in California is going to replace the shipment, which included \$48,000 worth of bees. She’s also hoping for some sort of relief from the airline, though she understands that for many airlines, people ship live animals at their own risk.

But she’s grateful for the support from the Georgia beekeepers. Some took the few survivors back to their own apiaries.

“I will forever be grateful for anything that they were able to salvage,” she said. “They just assembled quickly and efficiency and really are the heroes in this scenario.”

And while this is the first time she’s experienced such a tragedy, she said it’s not the first time she’s heard of bees dying in transit.

Distributors know how much food to put in crates so the bees can travel safely within a reasonable timeframe. But that becomes complicated when there are delays or cancellations, particularly in extreme climates.

McElrea is coordinating with beekeepers in Seattle so that if there’s a problem with the next shipment, volunteers will be ready to intervene.

Catherine Salm with Delta Air Lines’ corporate communications said in an email Tuesday the airline is aware of the incident and is working to make sure something similar does not happen again.

“We have been in contact with the customer directly to apologize for the unfortunate situation,” she said.

McElrea wants people to know they can protect these important pollinators in their own backyards. She said gardeners should plant pollinator-friendly plants and avoid spraying toxic chemicals, like RoundUp. Importantly, they shouldn’t be afraid of honeybees, which only sting when they’re in danger.

“Being educated about honeybees is the first big step I think everyone should take on that can help them to just have a better understanding of how important they are as far as pollinators,” McElrea said. “And just such a fragile part of our ecosystem that we as humans are completely dependent on for our survival.”

Now, McElrea and other beekeepers from the Kenai Peninsula are waiting on the second shipment and the replacement, set to come in later this week.

WABE journalists Matt Pearson and Emily Wu Pearson contributed photographs and interviews from Atlanta.

<https://www.ktoo.org/2022/04/27/millions-of-alaska-bound-honeybees-die-atlanta/>



Bees can tell difference between odd and even numbers; here’s how it helps

By teaching other animal species to discriminate between odd and even numbers, and perform other abstract mathematics, we can learn more about how maths and abstract thought emerged in humans

[Scarlett Howard | Monash University](#)

[Adrian Dyer | RMIT University](#)

[Andrew Greentree | RMIT University](#)

[Jair Garcia | RMIT University](#)

1 May, 2022



Two, four, six, eight; bog in, don't wait.

As children, we learn numbers can either be even or odd. And there are many ways to categorise numbers as even or odd. We may memorise the rule that numbers ending in 1, 3, 5, 7, or 9 are odd while numbers ending in 0, 2, 4, 6, or 8 are even. Or we may divide a number by 2 where any whole number outcome means the number is even, otherwise it must be odd.

Similarly, when dealing with real-world objects we can use pairing. If we have an unpaired element left over, that means the number of objects was odd.

Until now odd and even categorisation, also called parity classification, had never been shown in non-human animals. In a new study, published today in the journal *Frontiers in Ecology and Evolution*, we show honeybees can learn to do this.

Parity categorisation

Why is parity categorisation special? Parity tasks (such as odd and even categorisation) are considered abstract and high-level numerical concepts in humans. Interestingly, humans demonstrate accuracy, speed, language and spatial relationship biases when categorising numbers as odd or even. For example, we tend to respond faster to even numbers with actions performed by our right hand, and to odd numbers with actions performed by our left hand.

We are also faster, and more accurate, when categorising numbers as even compared to odd. And research has found children typically associate the word even with right and odd with left.

These studies suggest humans may have learnt biases and/or innate biases regarding odd

and even numbers, which may have arisen either through evolution, cultural transmission, or a combination of both.

It isn't obvious why parity might be important beyond its use in mathematics, so the origins of these biases remain unclear. Understanding if and how other animals can recognise (or can learn to recognise) odd and even numbers could tell us more about our own history with parity.

Training bees to learn odd and even

Studies have shown honeybees can learn to order quantities, perform simple addition and subtraction, match symbols with quantities and relate size and number concepts. To teach bees a parity task, we separated individuals into two groups. One was trained to associate even numbers with sugar water and odd numbers with a bitter-tasting liquid (quinine). The other group was trained to associate odd numbers with sugar water, and even numbers with quinine.

We trained individual bees using comparisons of odd versus even numbers (with cards presenting 1-10 printed shapes) until they chose the correct answer with 80% accuracy.

Remarkably, the respective groups learnt at different rates. The bees trained to associate odd numbers with sugar water learnt quicker. Their learning bias towards odd numbers was the opposite of humans, who categorise even numbers more quickly.

We then tested each bee on new numbers not shown during the training. Impressively, they categorised the new numbers of 11 or 12 elements as odd or even with an accuracy of about 70%.

Our results showed the miniature brains of honeybees were able to understand the concepts of odd and even. So a large and complex human brain consisting of 86 billion neurons, and a miniature insect brain with about 960,000 neurons, could both categorise numbers by parity.

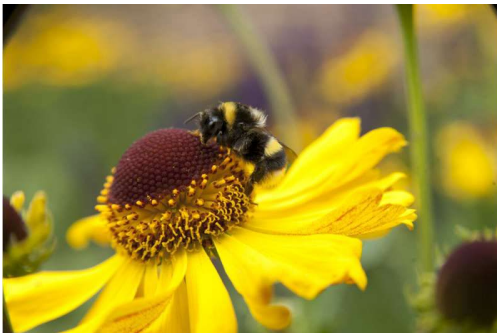
Read the rest of the article here: <https://thefederal.com/science/bees-can-tell-difference-between-odd-and-even-numbers-heres-how-it-helps/>



Scientists discover how bees activate natural medicine against parasite infection during pollination

May 1, 2022

by [Royal Botanic Gardens, Kew](#)



In a new paper published today in a special issue of Philosophical Transactions of The Royal Society, Kew scientists and partners report on how bees activate the "medicinal" properties of various nectars to protect themselves from parasite infections.

The team of researchers led by Kew scientist Dr. Hauke Koch, in partnership with Professor Mark Brown at Royal Holloway, University of London, collected [nectar](#) and pollen samples from linden and strawberry trees at Kew Gardens in West London to determine how [bees](#) process the beneficial compounds found within. The researchers found that two compounds naturally found in the nectars of these species are activated by the bees' digestive processes, the gut [microbiome](#) (microorganisms) or a combination of both.

The study's primary aim was to discover how these elements and their anti-parasitic qualities can protect bees from the common gut parasite *Crithidia bombi*. The experiments yielded promising results for bee conservation efforts at a time when pollinators face the increasing threat of decline from climate change, disease, and habitat loss due to agriculture and land

use.

Pollination by animals is one of the world's most important species interactions, as plants offer a nutritious reward to insects, birds, and small mammals in exchange for the transfer of pollen. Not only does this process facilitate the reproduction of many plants, but it also serves to support global food production and ecosystems. Scientists are, therefore, alarmed to see mounting evidence of declines in pollinator abundance and diversity.

Among the threats faced by pollinators today are the dangers posed by parasites. Bee parasites can be introduced and spread through global trade routes, and can spill over from managed honeybee colonies to wild pollinators. Their effects on bees are worsened by other stress factors such as pesticide use affecting microbiome health. The bumblebee gut parasite *C. bombi* is of special interest to scientists, as the parasite is common and known to threaten the survival and development of bumble colonies.

Dr. Hauke Koch, Research Leader in Pollinator Biological Chemistry at RBG Kew and lead author of the paper, says, "Pollinators have diverse microbiomes in their guts and nest environments. These communities of microorganisms can be important for the health of pollinators, for example by defending them against diseases or producing important nutrients. By better understanding the functional importance and contributions of individual members of the microbiome to different pollinators, we may in the future be able to better support their health.

"For example, managed honeybee and bumblebee colonies can be supported through novel probiotics, or healthy microbiomes in wild pollinators can be maintained through a restriction in pesticides that negatively affect the microbiome and through the promotion of plants with nectar or pollen chemistry that stimulate healthy microbiomes."

The first compound analyzed by the team, unedone, was found in the nectar of strawberry trees (*Arbutus unedo*) and was extracted from strawberry tree honey. The evergreen, shrubby tree is native to Ireland, Western Europe and the Mediterranean, and commonly planted in parks and gardens in the UK. Its nectar and pollen-rich flowers are known to be an important food for bumblebees in the autumn. Honeybees produce a bitter-tasting honey from it that is sought after around the Mediterranean.

The compound unedone was tested on *C. bombi* cultures grown in a lab as well as on buff-tailed bumblebee (*Bombus terrestris*) gynes (female bees capable of reproduction) collected at Kew in the autumn of 2018. The latter part of the experiment saw the researchers feed the bees a mix of sugar syrup and pollen over a two-week period, after which their feces were screened for parasites. Select bees were then given a treatment of sugar syrup or a treatment of unedone. The compound was found to inhibit *C. bombi* infections but only after interacting with the microbiome, as the initial metabolic processes in the mid-gut rendered it inactive against the parasite.

The researchers also determined that tiliaside, a compound extracted from the nectar of the linden tree, offers similar benefits to buff-tailed bumblebee workers. However, in contrast to unedone, tiliaside was found to be activated by the bees' own digestive processes. Both compounds have been put forward as evidence of the benefits that food and microbiomes hold for protecting and strengthening pollinator health—at an individual and community level.

Professor Phil Stevenson, Head of Trait Diversity and Function at RBG Kew, and study co-author, says, "Understanding the drivers of pollinator health—both good and bad—is critical to realizing how we can best support pollination services and continue to benefit from their contributions to food production and sustaining natural ecosystems.

"We now know that some flowers provide better nutrition for some species while others provide bees with a natural medicine, so we can select plants for restoring degraded landscapes or crop field margins that provide multiple and tailored benefits to pollinators enhancing their health from individual through to community level."

In addition to the dangers posed by parasites, pollinator decline is being driven by pesticide use, the intensification of agriculture, and climate change. Scientists are thus keen to better understand the natural processes that influence and affect pollinator health—both positively and negatively. These processes include the nutritional quality of pollen and nectar, the impact of parasites and the benefits of the microbiome, as well as the effects of natural bioactive compounds and landscape structure.

Stevenson adds, "The impacts of human activities on pollinator health and decline through

excessive [pesticide use](#), climate change and agricultural intensification are now widely accepted after decades of evidence gathering.

"We now need to look for solutions and ways of sustaining diverse and healthy populations of [pollinators](#) and other insect groups. Many of these solutions can be developed through a better understanding of the natural processes that influence pollinator health. If we know how nutrition varies across the pollen of different species and which species provide the best food resources for the widest range of pollinating species, we can implement restoration programs such as field margin planting and ecological corridors with much better accuracy to the species of importance and with long-term benefits."

<https://phys.org/news/2022-04-scientists-bees-natural-medicine-parasite.html>

THE CONVERSATION

Why do we want what we like? New evidence from bee brains offers clues

Published: April 28, 2022 2:01pm EDT

Beth Daley

Editor and General Manager



What makes us want things we like? We know things that offer potential rewards, including food, sex, addictive drugs, and even certain artworks, can inspire desire in us – but why?

The French Enlightenment philosopher [Denis Diderot](#) pointed out a central conundrum:

Desire is a product of the will but the converse is also true: will is a product of desire.

Neuroscience has solved part of the mystery, by identifying a system that drives wanting in mammals involving specific brain regions. Desire may help an animal to survive, for example by wanting to experience pleasure from nutritious food.

Now, as we discuss in [a paper in Science](#), new research by Jingnan Huang at Fujian Agriculture and Forestry University and colleagues has found [evidence of a similar wanting system in honeybees](#).

A common currency for driving wanting

What do we mean when we talk about “liking” and “wanting” things? Well, for neuroscientists, “liking” means the pleasurable feeling we get when we consume some reward. “Wanting”, on the other hand, means being motivated to reach the reward.

We know a bit about what happens in our brains and those of other mammals such as rodents [when we want a reward](#). It involves dopamine, a kind of chemical called a neurotransmitter that enables communication between neurons in our brains.

To understand how the process works for non-mammals, Huang and colleagues looked at what happens in the brains of bees when presented with the prospect of a reward.

As the German scientist [Karl von Frisch](#) showed in the 1920s, honeybees use a symbolic dance language to communicate the location of rewarding flowers to hive-mates.

Other bees who observe this “waggle dance” are enticed to leave the hive and forage to collect nectar or other nutrition.

Huang and colleagues [measured dopamine levels](#) in the brains of the dancing and observing bees. They discovered that dopamine surges for performers and watchers at the beginning of the waggle dance, dropping off by the time the dance concludes.

Dopamine levels were higher when watching the dance than when the bees were actually feeding. These fluctuations show it is the expectation of wanting the sweet reward of nectar that chemically motivates the honeybees to forage.

A wanting system in a miniature brain

In spite of having fewer than a million neurons in their brains, honey bees demonstrate complex behaviours and are cable of solving problems like detecting [flower scents and colours](#).

Other research shows [bees can learn symbols to represent numerical quantities](#), or can learn to perform [maths tasks like arithmetic](#).

Huang and colleagues also showed that providing higher dopamine concentrations to some test bees increased their motivation and improved their capacity to learn flower signals like scent.

How to motivate pollinators

Honeybees and other bee species native to the different regions of the world are among the most important pollinators of many commercial and wild plant species. By carrying pollen from one flower to another of the same species, bees ensure cross pollination which often results in higher [number of seeds and fruit size](#).

Therefore bees are of important economic value by pollinating valuable crops such as almonds, citrus and various species of vegetables.

Queen bees can [modulate dopamine pathways of young bees](#) to capture their attention and motivate them to complete specific tasks. A better understanding of the effects of dopamine on the wanting system of honeybees may open the door to a more efficient and sustainable use of honeybees for many tasks including agricultural and neuroscience.

The new research on honeybees also supports an idea raised by the famed English naturalist Charles Darwin 150 years ago, in his book [The Expression of Emotions in Man and Animals](#). He proposed that liking and disliking things was so helpful to animals that it might form the basis for wanting mechanisms in humans and other animals.

This idea, alongside the presence of a wanting system in honeybees suggests that a precursor of the mammalian wanting system may have developed very early in the evolutionary history of

animals. It may also provide a biologically plausible explanation for why we want what we like.

<https://theconversation.com/why-do-we-want-what-we-like-new-evidence-from-bee-brains-offers-clues-181482>



Hello Honey Industry Partners!

We would appreciate your assistance spreading the word on our continuing research project. We are collecting samples of citrus blossom honey from locations in North America. There is a sample collection form included (download here: https://803a53c6-072b-4f8f-960b-bf8520169c2b.usfiles.com/ugd/803a53_0bd8b373e75d4d7f98e8bb7e67f97fbb.pdf). We are requesting 118 mL/4 oz samples. Senders are not responsible for costs related to testing. These samples will be collected by QSI America and the testing will be used to support a future identity standard for citrus blossom honey.

Timing is a bit urgent to obtain samples this season. The sooner you are able to share this opportunity with your constituents, the better this project will be. Thank you for your support!

The USP Honey Expert Panel On behalf of
Norberto Garcia, Chair and
Gina Clapper, Senior Scientific Liaison with FCC and US Pharmacopeia

Please contact Gina with any questions or comments (gina.clapper@usp.org)



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AHPA App

As AHPA continues to work on behalf of all beekeepers, one of our initiatives is advocating with the FDA in Washington D.C. to update honey labeling guidelines. As part of this effort, we need your help to collect pictures of honey labels from around the United States. Our goal is primarily to find honey that is mislabeled according to current FDA guidelines. Secondly, we need examples of any labels which misrepresent country of origin or are purposefully confusing to consumers so that we can advocate for positive changes and updates.

Search the App Store or Google Play for "AHPA app". We need to collect as many pictures from honey on the store shelf as possible. Please take a few minutes to help collect this data.

The materials and information included in this electronic newsletter are provided as a service to you and do not reflect endorsement by the American Honey Producers Association (AHPA). The content and opinions expressed within the newsletter are those of the authors and are not necessarily shared by AHPA. AHPA is not responsible for the accuracy of information provided from outside sources.
