

10 Minutes For The Planet

Life is sweet: honey and pollution©

by Sarah Heath and Catherine Balter-Kendall

Stressed syllables are underlined and in **bold**.*



Hello! I'm Sarah Heath and you're listening to 10 Minutes for the Planet on EnglishWaves.

The **plight** of **world** bee populations is already well-documented and the **frantic** race to save our buzzing little friends has become **rightly**, an international preoccupation: without their help, bees including honey bees, pollinate around a **third** of **crops** globally as well as 80% of European wildflowers, so their presence **cannot be underestimated**.

Bee numbers have declined **drastically** in recent years through climate change, **disease**, pesticides, and the reduction of natural habitats. As one among this species, honey bees – proper name *Apis Mellifera* – have now, **unwittingly** become a new **source** of environmental information, in **providing** data to researchers on air pollution. This study, which is the **first** of its kind, was **embarked upon** by scientists from the University of British Columbia in Canada.

In order to compile data on air pollution in major cities and to then determine the origins of that pollution, a research study was **launched** to examine the honey made by honey bees living in **beehives** in six locations around the city of Vancouver.

Results published in the **journal**, *Nature Sustainability*, **confirm** that honey can be considered a geochemical **biomonitor** by providing what the research team call a “localised **snapshot**” of the environment. The honey is examined for different pollutants, the provenance of which can then be traced by the researchers.

plight (n.) critical situation
frantic (adj.) hurried because of need to act quickly
rightly (adv.) correctly
crops (n.) cultivated plants for consumption
cannot be underestimated (exp.) is extremely important

drastically (adv.) in large numbers
disease (n.) illness
unwittingly (adv.) unintentionally
to provide (vb.) to give
to embark upon (phrasal vb.) to start to do a big project

(bee)hive (n.) a box-like habitation constructed for bees
biomonitor (n.) an organism that gives information on its environment
snapshot (n.) photo

The University's Pacific Centre for Isotopic and Geochemical Research have **discovered** that honey produced locally to the Port of Vancouver revealed higher-than-usual traces of **lead**. The honey was put through a variety of isotope tests to check for **minute** particles of **chemical** elements such as lead, zinc and **copper**. Analysis proved that the lead originated from Asia, almost **certainly** from cargo ships which arrive in **huge** and regular numbers from Asia-Pacific into the **port**.

Honey bees look for pollen and nectar in an area of roughly 3km around their hive. This piece of research showed that honey from hives in more **industrial** areas had higher levels of lead than honey tested in more rural areas.

This new technique is a **back-up** to **more** traditional **monitoring** techniques and needs little specialist **equipment**, making studies easier to **perform** thus facilitating and encouraging scientists who want to **investigate** sources of pollution in the **field** of **urban** geochemistry.

And for the honey bees themselves, **unaware** of the information they are providing, which may **ultimately** be for the **benefit** of their own species, scientists have also been able to prove other **amazing** bee skills!

Melittology, the study of bees, has shown that honey bees can **learn** to add and subtract. When **put through a range of tests**, scientists reported that the bees, some of whom were "taught" achieved the correct answer between 64% and 72% of the time. Their **mathematical** skills also include a recognition of zero as a number, as proven by scientists at the University of Melbourne.

Additionally, they can be **taught** how to **work** for a **reward** which they then demonstrate to others within the hive. Their communication skills using their body – **largely** through what is known as a "**waggle**" – direct others within the nest to find food sources in relation to the position of the sun. They use the same **figure-of-eight movement** to point their friends in the right **direction** when they need to move the **swarm**.

Honey bees are not among the most endangered of the 25,000 species of bee although as with all bee populations, they have had to **overcome challenges**. **Thankfully**, action is being taken to **prevent** their **disappearance**: a year ago, after consultation with the European Food Safety Authority, the EU finally **signed off a ban** on three particular chemicals used by farmers which contain neonicotinoids – chemicals which are particularly **harmful to** honey bees.

lead (n.) a heavy, toxic metal

minute (adj.) extremely small

copper (n.) a red-brown metal

huge (adj.) very large, enormous

back-up (n.) a supporting system providing information

monitoring (n.) observing
to perform (vb.) to do, to carry out

field (n.) domain, area
unaware of (exp.) not knowing about, ignorant of

ultimately (adv.) in the end, finally

amazing (adj.) very surprising

to put through a test (exp.) to subject to doing a test

range (n.) variety

largely (adv.) mainly, principally

waggle (n.) a movement of the body from side to side

figure-of-eight movement (exp.) a movement which traces the shape of the number eight

swarm (n.) a dense group of flying insects

overcome challenges

(exp.) to surmount difficult circumstances

thankfully (adv.)

fortunately

to prevent (vb.) to avoid sth. happening, to stop

to sign off (phrasal vb.) to approve sth. officially

ban (n.) to prohibit the use of sth.

harmful to (adj.) dangerous for

The success is such that it is now being **reported** that there is an imbalance in the number of honey bees, who are being categorised as playing a major driving role in **agriculture**. Their **pervasiveness** is beginning to **upset** delicate environmental ecosystems in rural areas. But maybe their new-found use in helping the **environment** in other ways through testing air pollution via their honey, might somehow **redress the balance**? Honey bees assisting in **environmental** research while simultaneously producing delicious honey – a win-win.

Tune in next week for more stories on the environment, here on English Waves.

pervasiveness (n.)
presence everywhere,
abundance
to upset (vb.) to disturb
the normal state of sth.
to redress the balance
(exp.) to restore the
equilibrium

***Tip!**

The following words all contain the same vowel sound as in “more”.

source, launched, port, taught, reward, reported, swarm

The following words all contain the same vowel sound as in “first”.

world, third, journal, confirm, certainly, urban, learn, work

Note that in both sounds the “r” is not pronounced but modifies the sound of the vowel.

The word “minute” (meaning extremely small) is pronounced like “my newt”, unlike “minute” (meaning 60 seconds), which rhymes with “limit”.