

1

Honey bees evolved around 120 million years ago

When flowering plants appeared and carnivorous wasps switched to feeding nectar and pollen to their young instead of insects, over millennia, their young evolved into honey bees and created nature's most fundamental ecological partnership.

2

Bees need a diverse diet

To remain healthy, bees need a varied diet foraged from a variety of flowering plants.

3

Honey supports bee health

Research shows honey contains enzymes, vitamins, minerals, and beneficial plant compounds called phytochemicals that support bee health and resilience.

LET'S TALK ABOUT



The Hidden Biology of Honey Bees

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People & the Planet

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To collaborate contact: info@thewbp.org

1

Leaves aren't just for photosynthesis

Some plants can absorb nutrients like iron and manganese directly through their leaves.

2

Dust can be nutritious

Dust from deserts carries nutrients that some plants absorb through their leaves.

3

Leaves can outperform roots

On leaf surfaces, nutrients face less competition than in soil, making absorption surprisingly efficient.



LET'S TALK ABOUT

How Plants Feed Beyond Their Roots

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1

Plants can store memories of stress

through epigenetic changes that do not alter their DNA sequence but change how genes behave.

2

Primed plants respond faster and more strongly

to recurring pests or diseases - even if they were originally vulnerable.

3

Plants can “train” their soil, releasing chemicals that attract beneficial microbes and protect future generations.

LET'S TALK ABOUT



The Hidden Intelligence of Plants

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1

After stricter ecological screening, only **389 million hectares worldwide** are suitable for new forests - far less than earlier estimates of 200 - 2,000 million hectares.

2

Tree planting delivers the greatest carbon return in **wet tropical regions** such as Brazil, Colombia, China, and India, where growth rates are high.

3

Even if all suitable land were planted, forests would absorb about **40 billion tonnes of carbon by 2050** - insufficient on their own to keep warming below 1.5°C or 2°C.

LET'S TALK ABOUT



Planting the Right Trees
in the Right Ecosystems

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1

Climate change is increasing rainfall variability, not just changing averages.

A major study shows that human-caused global warming has increased rainfall variability across more than 75% of the world's land area, meaning rain now falls in more erratic and unpredictable ways rather than steadily over time.

2

Warmer temperatures create a paradox of droughts and floods.

As the planet warms, soils dry out due to increased evaporation, while warmer air holds about 7% more moisture per degree of warming, leading to longer dry spells followed by sudden, intense downpours that often cause flooding instead of replenishing soil.

3

Rainfall variability poses serious risks to societies and ecosystems.

Even when average rainfall stays the same, increased variability strains agriculture, water management, infrastructure, ecosystems, and human wellbeing, making droughts and floods more likely to occur back-to-back and increasing future climate risks unless greenhouse gas emissions are reduced.



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How Rainfall Is Becoming Unpredictable

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1

In 2025, the United States rolled back key climate safeguards and clean-energy investments, halting major wind and solar projects that would have positioned the country at the forefront of the global energy transition- while other countries led by China surged ahead.

2

China exceeded its 2030 renewable-energy targets six years early and has invested more than \$225 billion globally in clean-energy manufacturing, exports, and project financing - integrating environmental protection, job creation, and economic development at scale.

3

Countries and regions investing heavily in wind, solar, and hydropower are experiencing lower electricity prices, reduced fossil-fuel dependence, cleaner air, and faster emissions reductions - demonstrating renewables' economic and practical viability.

LET'S TALK ABOUT



The Global Clean Energy Divide

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1

Wild honeybees are now officially endangered in Europe.

For the first time, free-living honeybee populations have been listed as Endangered by the IUCN Red List.

2

Not all honeybees live in hives.

Beyond managed colonies kept by beekeepers, wild honeybees nest freely in trees and natural habitats - forming self-sustaining populations vital to ecosystems.

3

Protecting wild honeybees protects biodiversity.

These independent bees hold unique genetics that strengthen pollinator resilience, supporting Europe's crops, wildflowers, and food security



LET'S TALK ABOUT

Why Wild Honeybees Matter in Europe

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1

Managed honeybees can harm wild bee populations.

While helpful for farming, **managed honeybees and bumblebees compete** with wild bees for nectar, pollen, and nesting spots, often leaving wild species struggling to survive.

2

Protecting bee diversity is vital for the future.

To ensure healthy crops and ecosystems, we must **support and protect wild bee species**, not just managed honeybees, since all pollinators are interlinked in maintaining global food security.

3

Protecting wild bees is essential for healthy crops and resilient ecosystems.

Over 20,000 wild bee species pollinate the fruits, vegetables, and plants we rely on, but managed honeybees can outcompete wild bees for food and nesting sites.

LET'S TALK ABOUT



Why Protecting Wild Bees Matters

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1

Stop-and-go traffic = BIG emissions

Idling and accelerating at intersections create up to 15% of U.S. land transportation emissions—half the carbon footprint of the entire U.S. airline sector.

2

Eco-driving can cut emissions by 11–22%

Even 10% of cars adopting eco-driving could capture half of the potential savings.

3

No futuristic tech required

Your smartphone or car dashboard could guide speeds and help smooth out traffic while slashing emissions.



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Eco-Driving: A Climate Problem Fix

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1

Noise impacts health:

City noise levels as low as 60 decibels can increase blood pressure, heart rate, and stress.

2

Plants & forests “hear”:

Vibrations help plants detect water, send distress signals, and even communicate threats.

3

Sound predicts change:

Shifts in soundscapes often indicate **environmental changes** — sometimes before we can see them.

LET'S TALK ABOUT



Listening To The Planet

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1

Most of the world wants stronger climate action: Between **80 and 89% of people globally** support their governments doing more to fight climate change — a finding based on solid scientific surveys, not opinion or guesswork.

2

The media finally spotlighted this “silent climate majority”: In **April 2025**, more than **500 news organizations from over 60 countries** joined forces to spread awareness of the 89 Percent Project and the surprising global unity around climate action.

3

The **89 Percent Project is ongoing and momentum is building:** What started as an overlooked statistic is now turning into a global movement, with coverage and collaboration continuing through **2025 up to the COP30 climate summit** — signaling a shift toward more hopeful and empowering climate journalism.

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Stronger Climate Action

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1

Just **5 minutes in a park** can lift your mood. Green spaces don't just look good—they actively make **us happier and healthier**.

2

Trees help fight pollution, cool cities, and reduce flood risks. In England alone, green spaces **save £2.2 billion a year** in public health costs!

3

Watching nature scenes—like forests or waterfalls—can **lower stress** and even **raise pain tolerance**. Nature heals, even from a screen.

LET'S TALK ABOUT



Why Green Spaces
Matter More Than Ever

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1

Rebuilding after disasters should focus on creating stronger, more adaptable communities rather than simply restoring what was lost — a strategy aimed at bouncing forward, not just bouncing back.

2

Understanding and preparing for a wide range of interconnected risks — including social, economic, and infrastructural vulnerabilities — is crucial for effective climate adaptation.

3

True resilience requires deep systemic change and collaboration across society, addressing root causes like inequality and infrastructure neglect while leveraging teamwork and inclusive planning.

LET'S TALK ABOUT



CLIMATE CHANGE AND
NATURAL DISASTERS

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1

Native plants are highly adapted survivors — they thrive in their local environments with minimal care, needing little water, no pesticides, and no artificial irrigation systems.

2

Native plants support biodiversity — native plants provide essential food and shelter for pollinators and other wildlife, helping maintain healthy ecosystems.

3

Native plants offer major environmental benefits — from purifying water and cleaning air to controlling floods and capturing carbon, native plants play a vital role in combating climate change.

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NATIVE PLANTS



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1

Over 75% of food crops require pollination. While humanity's caloric needs can be met with wind-pollinated cereals and grains, essential micronutrients come from bee-pollinated fruits, vegetables, and nuts.

2

Many fruits and vegetables, like blueberries and cherries (up to 90% reliant on honeybees), need insect pollination. Hand pollination is possible but highly labour-intensive and costly.

3

The loss of bees would significantly affect food systems and human health but is unlikely to cause famine since most calories come from cereals. However, severe health issues would arise from micronutrient deficiencies.

LET'S TALK ABOUT



GLOBAL FOOD SYSTEM CRISIS

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LET'S TALK ABOUT

HABITAT DESTRUCTION

1

AIR POLLUTION AND CLIMATE CHANGE

Air pollution, particularly from vehicle exhaust and industrial emissions, can harm bees by reducing the quality of the nectar they feed on and damaging their respiratory systems. Changing weather patterns caused by climate change also affect bee populations by altering the timing of flowering thus disrupting the availability of nectar and pollen.



2

LOSS OF HABITAT

Bees need a diverse supply of nectar to thrive but as natural habitats are destroyed or fragmented by human activities, bee populations decline because they are deprived of a varied diet. Habitat loss also leads to food scarcity which weakens bee health and resilience and makes them more susceptible to disease and other stresses.



3

PESTICIDES

Certain pesticides are a major threat to bee health. They interfere with bees' nervous systems, and impair their immune systems making them more vulnerable to diseases and parasites.



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1

Honeybees remember the way back to their hives by using photoreceptors in their eyes to locate the sun's position. They also use memorised mental images of landscapes to guide them back to their hives.

2

Honeybees can recognise invisible ephemeral scent patterns on flowers through their feelers.

3

When building honeycombs, honeybees use clever strategies involving irregular shapes like heptagons and pentagons to transition between cell sizes and merge combs seamlessly.

LET'S TALK ABOUT



WILD HONEYBEES

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HOW FOSSIL FUELS AFFECT CLIMATE

1

Climate change is being driven by fossil fuels - oil, gas and coal – being burnt to generate electricity, emitting carbon dioxide, the primary driver of climate change. Fossil fuels release pollutants that make extreme weather even more violent, and dirty the air with toxins, killing between 1 and 10 million people yearly.

CLIMATE, FOOD, BIODIVERSITY: A FRAGILE BALANCE

2

The intertwined relationships between climate change, the food system, and biodiversity loss have created pressures causing the ecological system to break down.

IMPACT OF CLIMATE CHANGE

3

Climate change stresses pollinating species, making their natural habitats inhospitable. Increased droughts and floods make it more challenging to maintain crops and produce sufficient food in some regions.



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CLIMATE CHANGE &
GLOBAL WARMING

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HOW BEES HELP OUR FOOD BE YUMMY AND DIFFERENT

1

Bees are plant helpers! They buzz around flowers and make our food, like apples and strawberries tastier. They also help make our world full of many types of plants and animals, making everything colourful and fun.

WILD BEES AND THEIR BEST PLANT FRIENDS

2

Imagine having 20,000 bee friends. Each bee likes a special plant. They visit these plants and keep them healthy. This makes our world full of lots of plants and animals, just like having many different toys to play with!

BEES HELP MAKE HOMES FOR OTHER ANIMALS

3

Bees do a super important job. They visit flowers and help more flowers grow. These flowers become homes and food for other animals. Just like sharing toys, bees make our world a happy, colourful home for all creatures!

LET'S TALK ABOUT



BEES & BIODIVERSITY

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WHAT HAPPENS IF WE LOSE BEES?

1

Bees are like nature's gardeners. They help plants make yummy things like apples, strawberries, and cucumbers. Most of our food needs bees to grow. If bees go away, we won't get enough healthy food. We won't starve, but we won't be as healthy because bee-helped foods give us important nutrients.



CAN WE MAKE FRUITS AND VEGGIES WITHOUT BEES?

2

No, we can't. Bees are like the magic ingredient that helps fruits and veggies grow.

BEES HELP MAKE HOMES FOR OTHER ANIMALS

3

Bees do a super important job. They visit flowers and help more flowers grow. These flowers become homes and food for other animals. Just like sharing toys, bees make our world a happy, colourful home for all creatures!



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BEES & FOOD



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BEES ARE SMART COUNTERS!

1

Bees are good at counting. They can count up to three! They can also tell the difference between pictures with different numbers of objects, no matter their size or shape. Bees can even learn how to add and subtract, and they understand what 'zero' means.



BEES HAVE FEELINGS!

2

Scientists who study brains tell us that bees can feel things, just like us. Bees can remember things when they sleep, and some people who study brains even think bees might dream!

BEES HELP US LEARN NEW THINGS!

3

Bees are smart about seeing things and recognizing patterns, which helps them fly and find their way around. We've used what we've learned from bees to build and test flying machines without people inside them.



LET'S TALK ABOUT



BEES & SCIENCE



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