IF BEES DISAPPEAR

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then what?

No Bees – No Sex (for Some Plants)

It has been purported that Albert Einstein said: "If the bees disappeared off the surface of the globe, then man would have only four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man."

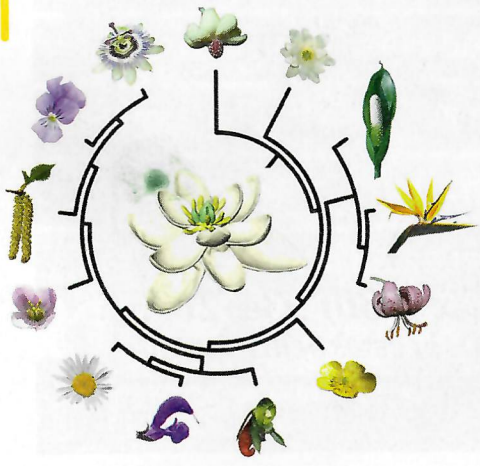
Do I believe this to be the case – no. But if that should happen it would be disastrous for the world as we know it.

Plants Need Sex to Reproduce

Sex has always been difficult for plants because they cannot move. Their reproduction takes place by pollination. Pollination accomplishes plant fertilization and the production of fruit, seeds and young plants. One method of pollination is the wind, which blows pollen from plant to plant. However, when pollination relies on the wind, 99.99% of the pollen goes to waste. Most trees, such as pine, rely on the wind for pollination. If you live in an area with pine trees you know how much pollen these trees produce!

The other method of plant pollination is accomplished by pollinators in search of food, such as nectar and pollen. During their visit to the flower, they may brush up against the male part of the flower (stamen) and then deposit pollen to the female part of the same or another flower (stigma). Once the pollen is received by the flower it can produce fruit or seed.

Evolution of the first flower



The earth didn't have flowering plants until approximately 145 million years ago. Plants of the Jurassic period were primarily green forests of tree ferns and conifers, such as pines and cedars. Since pollen is very nutritious, insects were attracted to the plants. During this time, the earth began to warm allowing plants to evolve and produce flowers. The flowers further evolved to produce bright colors, scents and the secretion of sugar-rich nectar, to attract insects. The first flower looked similar to a magnolia tree flower and its first pollinators were probably beetles. Interestingly, this first flower has evolved into over 350,000 species. Pollination by insects is called entomophily.

Research has shown that bees evolved from carnivorous wasps approximately 130 million years ago and pollen feeding, known as pollinivory, allowed bees to rapidly diversify. Bees have become the masters of gathering nectar and pollen. The evolution of both flowers and bees, developed into a symbiotic relationship where two organisms cannot survive without the other. These small creatures provide huge benefits.

Evolution of the Bee

Today there are over 20,000 known species of bees, most of which are 'solitary' bees (bees that live alone and not in a hive). The honey bee evolved in Afro-Eurasia approximately 25 million years ago. Today, bees are found on every continent except Antarctica. There are bees in every habitat on the planet where plants or flowers are pollinated. The honey bee accounts for 85% of all the pollination of flowering plants.

First bee

Since 2016, bees have been dying off at record rates, known as Colony Collapse Disorder (CCD). This disorder affects honey bee colonies and is characterized by sudden colony death, with a lack of healthy adult bees inside the hive. Although significant research has been focused on solving this issue, the cause is not known. Researchers suspect that multiple factors may be involved including: loss of habitat, decline in biodiversity, pesticides and other agricultural chemicals, climate change, pathogens, pests and parasites all contributing to the single catastrophe. Since 2016, the annual loss of honey bee hives is over 40%.

Fortunately, beekeepers can create colonies by purchasing additional queens from honey bee queen suppliers and splitting one colony into two. In each hive there is one queen, tens of thousands of females (worker bees that can't lay fertilized eggs and produce new bees) and up to 200 males (or drones) in the Summer. The drones only mate with virgin queens from other hives.

Pollinators and the Environment

As the world's most important group of pollinators, bees are a crucial part of agricultural production and natural ecosystem functions. Although most consider soil, water and sunlight necessary to produce plants on earth, at least 30% of the world's crops and 90% of all plants require cross-pollination to spread and thrive, which the bees provided.

In simple terms, pollination allows plants to produce more plants. Without pollinators, plants would slowly reproduce, if at all. Pollination provides genetic diversity resulting in stronger