

Bee Extinction

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Over the past 100 years there has been a significant decrease in bee population. Through my studies, I have seen a growing decline of bees in global economies over the years to the point of extinction. Bees have been significant in time because they partake in sexual reproduction of many plants by guaranteeing cross-pollination or genetic diversity. Most plants and crops are a primary food source for animals and humans. After the past century, bees and other insect pollinators have been so impacted by environmental encounters such as habitat loss, degradation, fragmentation, pollution, and climate change. These factors have caused them to be extinct. It was just reported that there has not been a bee sighting in over 1 year in America.

What exactly caused bee extinction? Looking back at my records, there were 5 major threats to bees and other pollinators. These threats included, habitat loss, non-native species and diseases, pollution and climate change (Ersts, 2014). Habitat loss was a large component in the extinction of bees. Our population has grown so rapidly over the past centuries. There is hardly any rural land or green space compared to 100 years ago. We wanted to make sure that there were enough living spaces to fit our rapidly growing population. We really had to expand our cities while our communities were advancing and increasing at a quick pace. There was a large increase in infrastructure with new buildings and roadways which was not good for the bees. Due to this increase, the distance for a bee between habitat patches along their migration route expanded longer (Ersts, 2014). As the path became longer, it was harder for a bee to travel. Bees were not strong enough to complete these long routes and some died. This decreases habitat quality (degradation) and connectivity (fragmentation).

Non-native species and diseases also caused the bees to be extinct. Over time, there has been an increase in plants and animals that were brought into America from other countries. This change ended up decreasing the quality of the bee's habitat (Ersts, 2014). In 2030 there was a large increase in non-native shrubs, such as the multiflora, rose and it took over open fields. These shrubs took over the wildflowers that were needed by the bees (Ersts, 2014). Other non-native bees also attracted native bees away from native plants, which were excellent food sources. The After performing a study on native vs non-native bees, my classmates and I found that some habitats of European honey bees have been shown to compete with other native bees for nectar and pollen (Ersts, 2014).

Besides habitat loss and non-native plants and species, one of the biggest factors of the extinction of bees was pollution and climate change (Ersts, 2014). Air pollution over the years continually has been getting worse. Our government has been working hard to come up with new policies for cleaner air. There was a point that in some areas, you could walk outside and taste and smell the pollution in the air. In 2043 there was an invention made for cars that significantly decreased their gas emissions. It was a serious problem for bees because they relied on different scent trails to find their habitats and gardens. With the pollution in the air, there was no chance for a bee to use scent trails causing thousands of bees to die (Ersts, 2014). This was also all created from pesticide misuse, especially neonicotinoids. Many were spraying areas that were a major threat to pollinators which ended up contaminating the pollen grains that were necessary for bees (Ersts, 2014).

The increase in pollution then caused our climate to change which dramatically effected the relationship between bees and plants. Over the past 10 decades our environment has increasingly got warmer. What used to be fall is now summer. There are not very many people

that even own a winter jacket anymore. This weather changes then effected what plants were around. Some of the plants migrated to cooler temperatures and higher elevated habitats. However, the bees were not migrating with the plants, which is necessary for survival, and it caused a big decline in their population (Ersts, 2014).

The past year without the bees has been challenging. At first nobody noticed or cared that the bees were gone. Nobody understood their importance or what life would be like without them, but now after a year with no bees, everyone is starting to worry about their future, especially farmers. Bees were known to be responsible for \$30 billion dollars a year in crops (BBC). Bees were known to pollinate over 100 crop species that helped make up 1/3 of the U.S diet. Most of those crops were high-valued such as wheat, rice, corn, apples, blueberries, potatoes, etc (AgWeb, 2013). It was very important that bees continued to pollinate these crops to produce not just foods, but also edible oils, fiber, and even medicine. Not being able to produce the same kind of medications has been a serious problem affecting the medical industry and anyone who used those.

The extinction of bees has not only affected our medications and food sources, it has also affected many jobs. Now that bees are non-existent there has been a major decrease in profit for all of these producers. People are starting to worry that the human population is going to die out now. However, because all the bees are now extinct, does not mean us humans are going to go extinct as well. One of the main things that us humans are going to have to adjust to is our diets. Through this year we have noticed a large suffer in our diets. Without wheat, rice, and corn, a lot of ingredients have changed. The variety of foods has decreased quickly which has caused the cost of other foods to have a rapid increase in price (Palmer, 2019). Besides the effect the extinct bees have had on our agricultural industry, there has also been a change in our environment.

There has been an effect throughout our ecosystems. Many different plants that were pollinated by bees are starting to die off. The plants are now having fewer seeds which is lowering the reproductive success. This is changing the habitats and food webs of animals. It is almost like a rippling effect, since the bees are extinct, now dependent organisms are declining (Petruzzello, 2019).

The goal for humans in the past was to create room and develop new ideas and technologies to help their growing population, but this then ended up having a negative effect on the bee population which then had a negative effect on the human population. What could we have done in the past that would have put an end to bee extinction? How could we have saved the bees? In my research it appears that there were 5 major things humans could have participated in that would have stopped bees from becoming extinct (Ivie, 2018). One of them includes saying no to pesticides and instead use a natural alternative. Second, as humans could have made a bee garden by planting a variety of different herbs and flowers that attracted bees so they would not have to migrate as far in between routes. Third, it would have been beneficial to shop locally and responsibly. When it comes to it, supporting your local bees and local farmers are connected (Ivie, 2018). One thing I noticed, which could have changed a lot, was the lack of awareness for bee extinction. I see a lot of articles on “save the turtles”, but I do not see much about “save the bees”. If people were not aware of the issue, how would they have known to change it? I believe in the past if bee extinction was more public and advertised, people would have put all of these changes in action and it could have saved the bees.

However, there are many new organizations that have formed in the past decades to try and find solutions for our future without bees. One solution that has been discussed is self-pollination. It has been shown that in China they are hand-pollinating flowers (Rodriguez, 2018).

Basically, the idea that humans are taking the job of what the bee would do. Using a brush, the worker would cautiously transfer pollen from the male to female flowers to increase fertilization. Another solution would be to transfer bees from other countries. However, if we transfer bees from other countries, we need to ensure that our environment has improved enough for them to not become extinct again. Helping stop global warming and pollution has been a problem that has gone on for decades. It is expensive to purchase sustainable items. Everyone today likes being lazy and taking the easy way out, and most of the time the easy way is not a sustainable way. So, our cheapest and best option might have to be to human pollinate. It would provide more jobs and potentially be more sustainable (Rodriguez, 2018).

Overall, bees and humans have a close relationship. We both rely on each other heavily. Over the past 100 years there have been so many technology and infrastructure advancements and habitat loss due to our growing population. Us humans got selfish and forgot about the effects to the agriculture, bees, and the environment. As a student, I want to make a difference so in 100 years from now, we do not have to worry about extinction.

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