

How Are Bumblebees & Honeybees Important In an Urban Area Like NYC?

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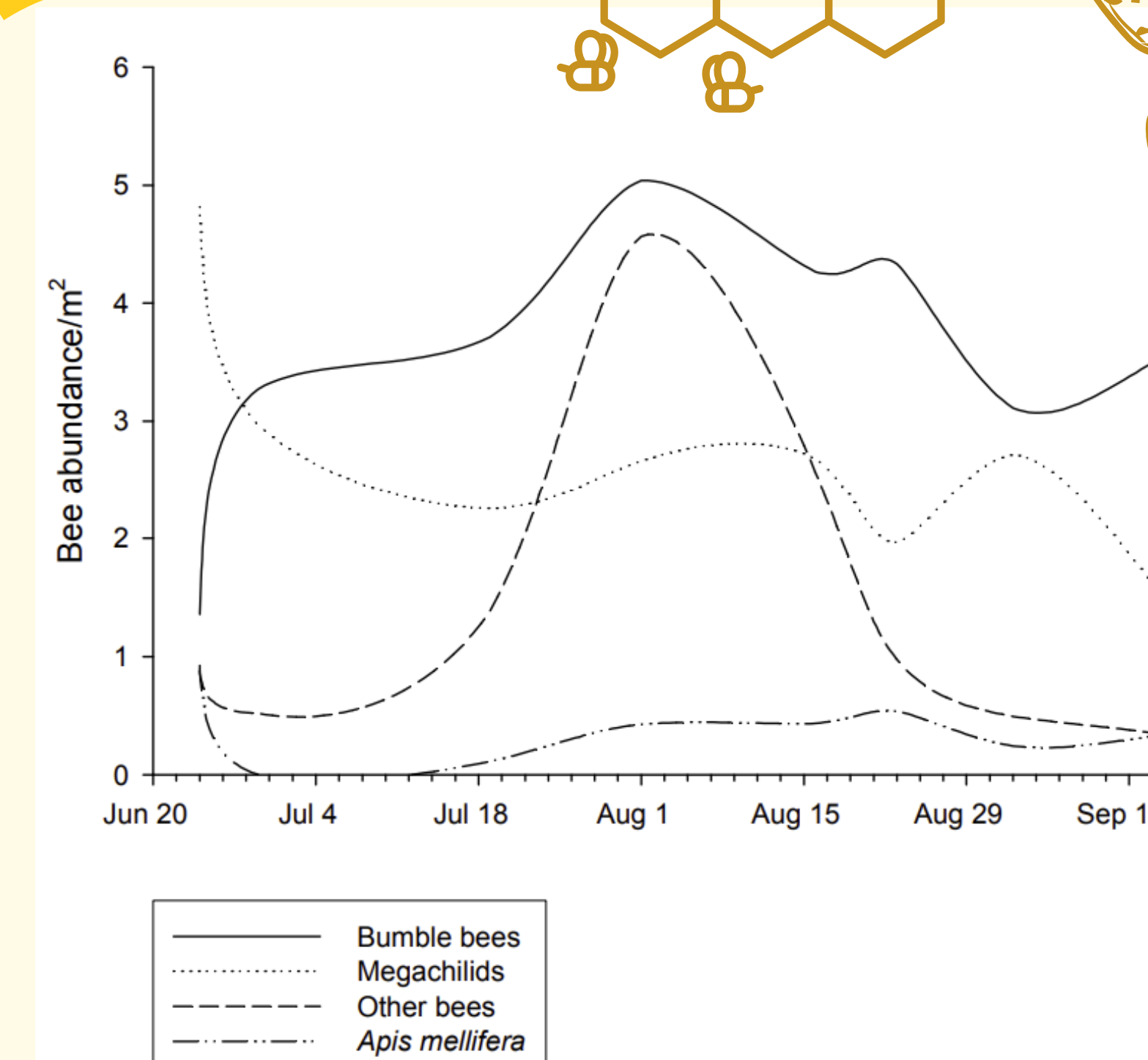
Introduction

In a vibrant and dense environment such as New York City, bees serve as crucial elements that assist in maintaining a sustainable ecosystem and supporting the human food chain. Bumblebees, *Bombus impatiens*, are heavily relied on for pollination as they visit crops and fertilize plants frequently, making them one of the primary pollinators in New York City. Similarly, *Apis mellifera*, honeybees, act as more worldwide pollinators, but cannot partake in many of the ecological roles that the bumblebees do. The decline in the bee population would lead to a decline in pollinated plants, crop yield and just overall disruptions to food productions in the world, especially NYC. Therefore, it is important to understand the differences between the two bees and how a shift in their population would affect the sustainability of New York City.

Data

Food Security and Bees

"In North America, it is believed that 30% of food for human consumption originates from plants pollinated by bees" (Abrol et al.)
Bees play an essential role in global food systems, as they are involved in the production of about one-third of the food eaten, particularly fruits, vegetables, nuts and oilseeds. Honeybees alone pollinate \$15 billion worth of crops in the United States each year, including more than 130 types of fruits, nuts, and vegetables (U.S. Department of Agriculture). Bees pollinate cash crops like coffee, cocoa, almond and soybean along with fresh produce essentials such as apples, berries, and many vegetables like cucumbers and tomatoes. Because so many crops are pollinated by bees, decline in bee populations directly threatens our food supply. Protecting bees is therefore crucial to maintaining both agricultural production and global food security.



Relative abundance of four groups of bees in New York City community gardens from June to September 2005.

Bumblebees & Honeybee Differences

Honeybees (Apis mellifera)

Appearance

- Slimmer and more streamlined; less hairy.
- Golden-brown, with subtle darker stripes on the abdomen.
- Translucent wings; pointed
- Tapered abdomen.

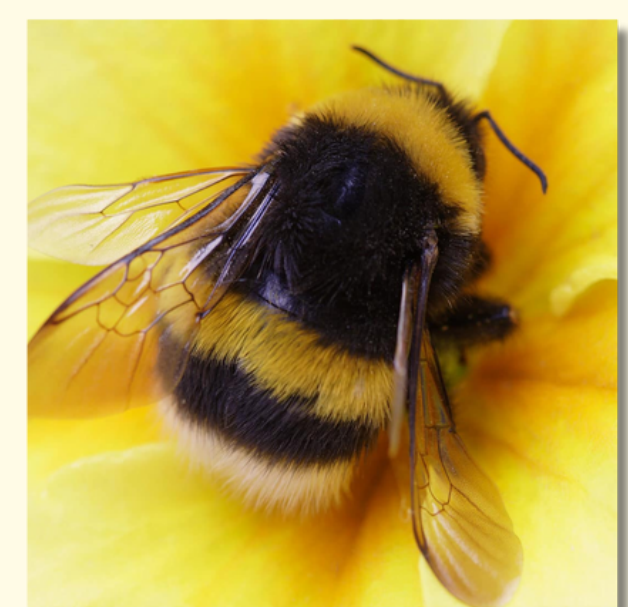


Colony size: Large, often tens of thousands of bees.

Hives: Usually in trees, hollow spaces, or human-made beekeeping boxes.

Human use: Often kept for honey harvest.

Stings: Barbed stinger; bee dies after stinging a mammal.



Bumblebees (Bombus Impatiens)

Appearance

- Larger, rounder, plumper, and "furry."
- Bold black and yellow bands, sometimes with orange or white.
- Darker or opaque wings
- Rounded abdomen tip.

Colony size: Small, usually a few hundred bees.

Hives: Underground or in cavities like thick grass, sheds, or above-ground nooks.

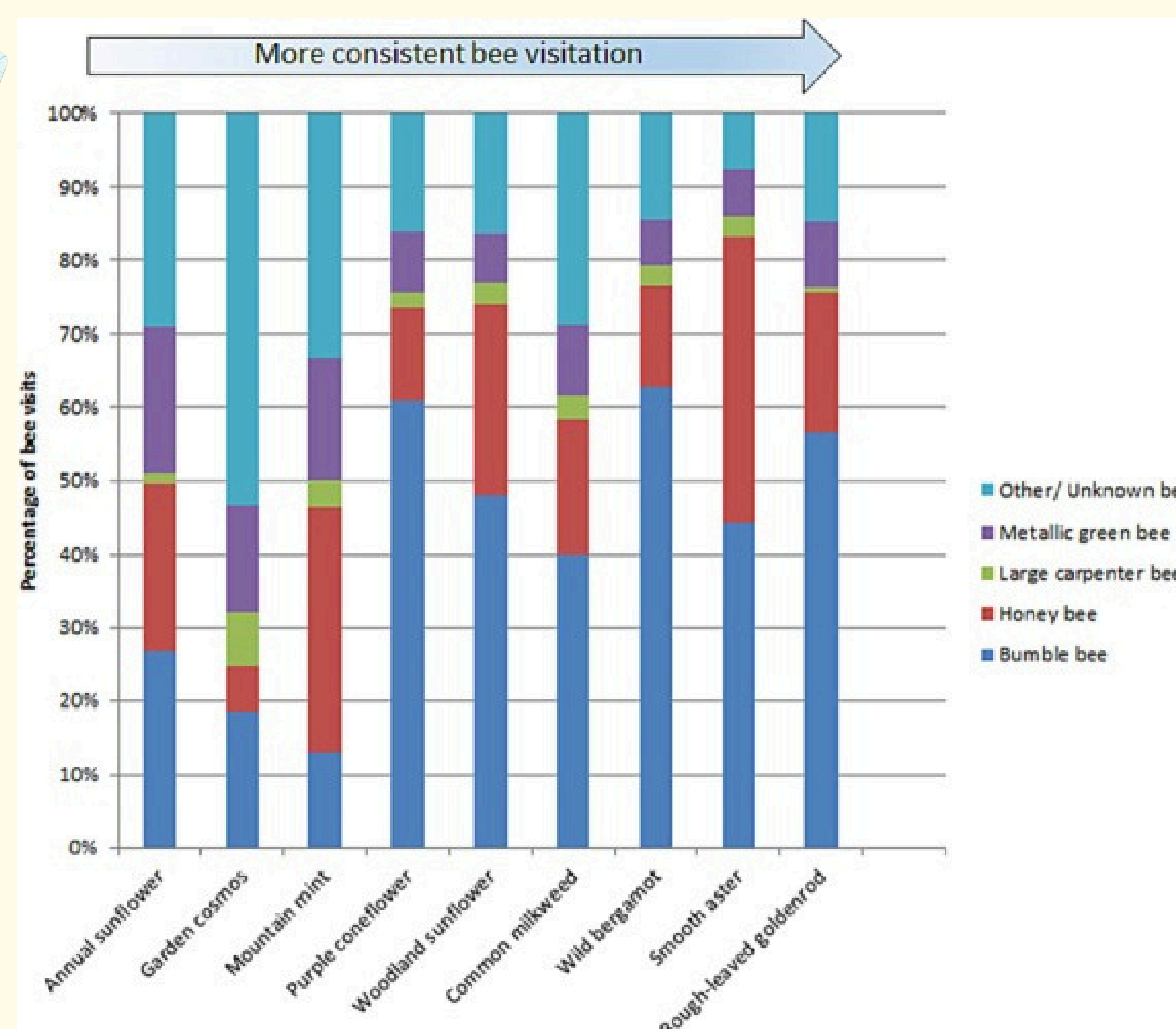
Human use: Not harvested for honey

Stings: Smooth stinger; can sting multiple times without dying.

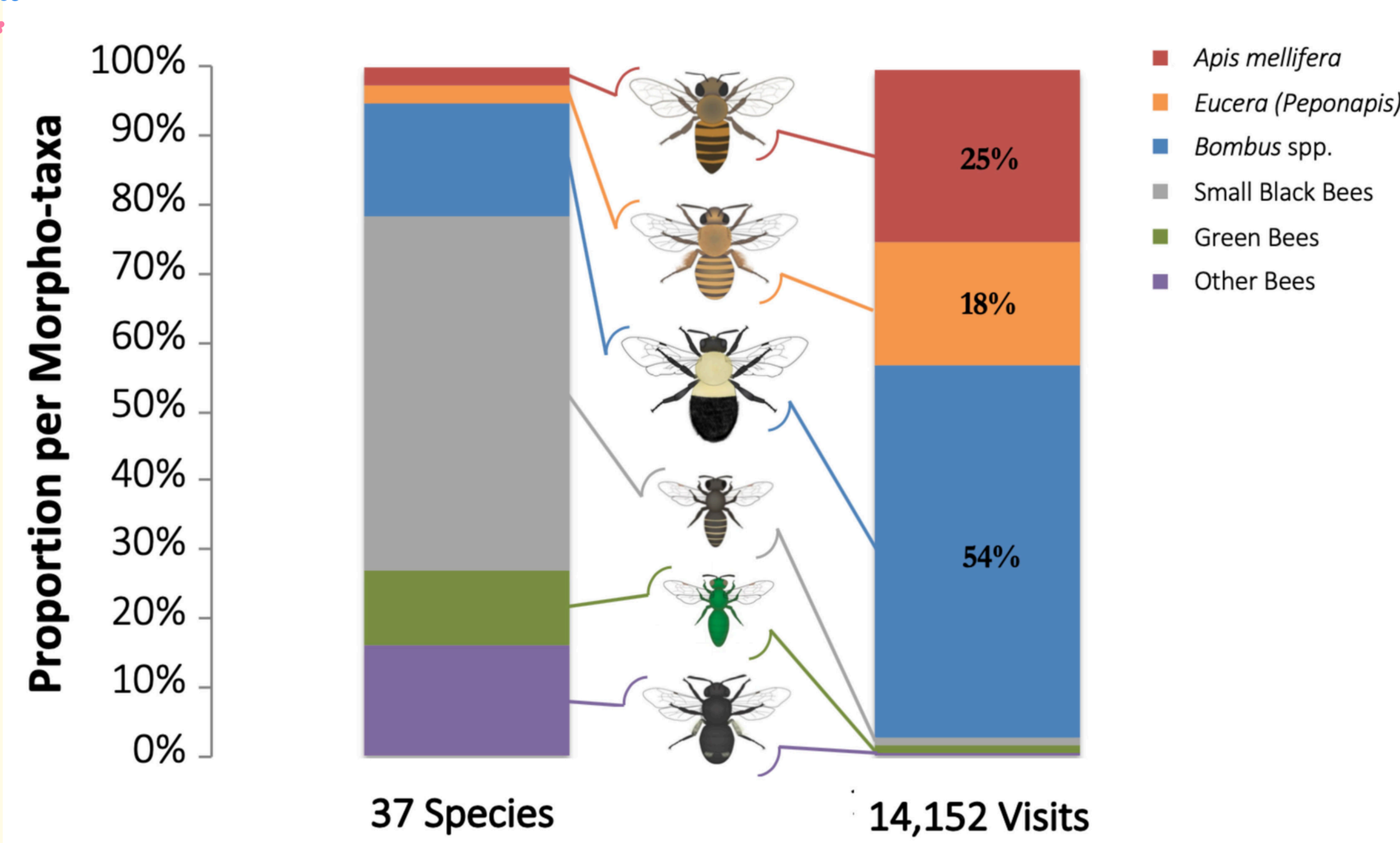
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Bee types observed visiting nine focal flowers across New York City from 2007 to 2010.



Bumblebees and honeybees show the highest number of visitations, highlighting their role as primary pollinators.

Method

For our project, we needed to research about the different types of bees. We separated our research into three groups. One group looked into general information about bees, their effect on the environment c. The second group researched Bumble bees. The third group looked up Honey Bees. We made sure to narrow our research to NYC related articles.

Significance

Although NYC has urban gardens and Central parks, cities are clearly lacking in green spaces. Researching bumblebees and honey bees, especially within NYC, help us to understand each species' process and patterns. We can determine which colonies are more effective in pollinating crops. We observed that honeybees are more average pollinators while bumblebees are more efficient. The information about each species helps us determine which pollinator is more productive in urban environments. This also allows local governments and organizations to adjust environmental practices to ensure pollination and consider negative outcomes if their populations were diminished.

Conclusion

The lasting impact of different bee species is foundational to ecosystem stability, biodiversity, and human food production. Honey bees, while being economically significant, represent only one part of what is a much larger network of bees. For example, Wild bees provide equally important and often more specialized pollination services that sustain wild plant communities and agricultural crops. Research shows that ecosystems with higher bee species diversity are more resilient, as different species pollinate during different seasons, under varying temperatures, and on distinct plant groups. These complementary roles strengthen ecosystem functions far beyond what any single other species could provide. This is especially true and needed within urban ecosystems within the city, where the sources of pollination are much more scarce.