

An Invasive Species Of Bees Having A Population Outside The Historical Range

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The non-native bees, also known as the “killer bees,” often have the general appearance of the common native bees. However, they are very different in various aspects, such as color, size and habitat. For instance, the Africanised Honey bee often has the general appearance of the temperamental European bee (*Apis Mellifera*). Nevertheless, they are much smaller, but only laboratory measurements could help in distinguishing between the two. The Africanised bees are robust and $\frac{3}{4}$ of an inch in length. Moreover, the body is covered with fuzz. They are brown in color with black stripes. Compared with most of the native species, most of the invasive species have clear wings, attached to the thorax. The size of the abdomen is also larger than the thorax, ending with a stinger.

After a direct loss of the habitat, invasive species pose the biggest menace to biodiversity. Biodiversity is a fundamental aspect of a vigorous ecosystem, offering various amenities such as natural resources, food that sustains the lifestyle of various species and building blocks of medicines.

Native bees have been on the decline over the years. Loss of habitat is the biggest threat to the decline, with the use of pesticides, invasive kinds and other environmental changes also occupying a major role. With the drastic expansion of urban regions, habitats appropriate for native species have been shrinking.

Objective

For the purpose of the paper, an invasive species is described as having a population outside the historical range. Invasive bees have both adverse and helpful bearings. Invasive bees with recognised adverse effects which are challenging to manage are usually known as “non-native” and some classes within the non-native inhabitants are referred to in this way. However, due to the beneficial aspects of bees and the fact that they are intentionally introduced, not all invasive populations are viewed as menace. Therefore, it is important to consider them as non-native bees.

The studies reviewed in this paper included several kinds of invasive species from different genera across the world. The invasive species are disproportionately dispersed among the different bee families. This suggests features of some bee families might make them more possible to have Adventist species. The mining bee is one of the most invasive bees in North America. The species is only represented in a single invasive bee (*Andrena Wilkella*). At the same time, the Africanised “Killer” bee is represented by more than eight representatives. In fact, the invasive killer bees have more representatives of the Megachilidae and Apidae families. However, some species of the other families

have a smaller number of species and, therefore, are less likely to have any invasive representatives. With thirteen invasive Killer bees, megacycle is the best-represented genus.

Our specific objective is to demonstrate the utility of killer species distribution models as well as identify potential hybrid swarms. Such kind of hybrid have significant contribution to the invasion process. This can be demonstrated if the hybrid is found to have a wider potential habitat than the parent taxa. Second, if various genotypes of a species respond differently to different environmental drivers, resulting in a wider extent of invasion.

Distribution:

The ancestor of invasive Killer bees lives throughout Africa and Europe, North America and the South of the Sahara desert. The Africanised Killer bee has drastically been on the rise both in South and North America through Mexico. These species have continued the northern expansion of their zones by swarming. This is a practice by which to the replication of bee colonies.

The rate of spreading has been 200 miles annually. As of 2015, the invasive Killer bees, such as the Africanised Horny bees, had already colonized the Southern California counties and the southern central valley. Even though the spread of these species has been slow, over time, the range might expand to much of the Coastal region of California and the Central Valley. It can be expected that these bees would thrive in various environments, such as urban, agricultural as well as recreational areas.

Methodology

The research method used in this paper is as follows. First, understanding how the defensive behavior of honey bees is controlled and the genetics of the bee will contribute to the breeding process. This will help in ameliorating the impact of Africanised honey bees and the management techniques in control and bee keeping context. Second, the control methods have been put into consideration to offer the best control perspective with means of safely removing the established colonies of Invasive “killer” bees. Moreover, various studies have been considered in order to understand the foraging behavior, which has helped in maximizing the effectiveness of alternate pollinators. The study also focused on the detection techniques that help in tracking the movement of invasive species and their certification. Public information is also a fundamental component that helps in reducing the impact of Invasive killer species in California and various parts of the world.

Results

The Africanised Killer bee and the European wool-carder were first discovered in the United States in 1963. Since then, its effect has been felt in almost all the states in the US. The name Wool-carder bee

is attributed to the great building capabilities of the female bees. The female bees collect small pieces of plant hair and cut them into smaller mandibles. They do this through an up-and-down motion during Homeric collection and form small balls that as similar to the carding wool. The study has revealed that the carding capabilities of this invasive species induce chemical alterations in a plant, similar to what happens when insects eat plants. These changes send a signal to other wool-carder bees, attracting them to the plant, thus causing further destruction. Moreover, the female carder bees compete with the native bees for available flowers. Bees rely on the sector as their major source of food, and increased rivalry from different invasive kinds raises serious concerns over the future of the native species.

The activities of male wool carders seem to be even more threatening. Males belligerently protect flower resources in order to entice as many female mates as possible. Male species use advanced weapons on the lower end of the abdomen to attack any interloper who might not be any potential mate. This cause severe death on the intruder bees. By reducing rivalry for floral resources, the male wool-carder hopes to attract more female companions by visiting its spot, thus increasing the likelihood of mating.

Outside the Wool Carder genera, empirical evidence for the impact of their invasion is a bit sparse. Therefore, various researchers have suggested hypothetical effects but not the calculated impacts empirically. For a further 29 species, there are neither calculated nor empirical impacts on the literature. There are more than 11 species for which constructive impacts have been recorded. Therefore, more than two-thirds of invasive bee species are distributed in various parts of the world, and there is no empirical record of any effect of their introduction. This is not equivalent to the evidence of the lack of evidence for an impact. However, such kind of evidence might not be published. In addition to that, it is more challenging to obtain evidence for some influences than others. For instance, it is easier to demonstrate that invasive killer bees can pollinate an invasive plant species than to show it competes with other native bees, as the former can be measured directly.

The strongest evidence of the adverse impact of invasive species is in competition for flowers, cross-fertilization of non-native weeds and transmission of pathogens. However, there is little evidence that invasive Killer bees only compete for floral resources, as there are indications showing a lack of rivalry in a number of cases. There only appears to be concrete evidence for the competition for nesting in the Megachile species, and the potential adverse effects on the building structure have only been hypothetical for other species, such as the Lithugurus Chrysurus. However, some of the wood-boring species might have these potentials.

Moreover, there is no pragmatic evidence for the non-Apis genus to worsen cross-fertilization networks or adversely shake the native plant classes. However, there are concerns in various literature works that several species will have this impact, especially on the island. Suppose the theoretical effects can be viewed as an evaluation of the relative levels of concern regarding the introduction of certain species. The wood Carder bee is the most reviewed invasive bee species,

followed by the Africanised Honey bee. In fact, the range of these species has been on the rise in the past few years, and it appears to be nearing a global dispersal. There is ample proof that invasive species and native congeners, such as *O. lagnaria* in California, can share certain parasites. However, the potential for the invasive bees to spread to the native territories has not been explored much deeper. In contrast, the most pragmatic evidence for the adverse effects appears to be for the worldwide introduced Alfalfa Leaf Cutter Bee (*Megachile rotundata*) and (*Xylocopa tranquebarorum*). (U.S. Department of Agriculture, n.d.)

Conclusion

Invasive killer bees often present a very complex issue since their adverse impact might be inseparably connected to the cross-fertilization services they offer to humans and the positive impacts they have as pollinators. Whether or not they have a dramatic impact on various native groups and ecosystems or whether the anthropogenic effects, such as dilapidation of the native habitat, are driving changes in the structure of native communities. Therefore, it is important to conduct deeper research on the prevalence of invasive bees in various parts of the world. However concerns regarding invasive killer species exist, particularly when their varieties spread very quickly. For the widely held of the introduced kinds, only little information is known about them. Therefore, their part in the original ecosystem needs to be addressed, focusing on both the constructive and adverse impact they have on the intrinsic species. Ornamental floral plants could be used as a solution to prevent the spread of non-native bee species such as the Africanised Honey bee, and often send away the native bees. While one might think they are assisting bees by planting flowers, it is important to ensure that the planted flowers can be visited by the native bees. Native wildflowers can assist in mitigating the impact of urbanization on native species by facilitating the disposal of floral resources in an otherwise competitive atmosphere. (Global Invasive Species Database, n.d.)

References

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