Creating a Super-Organism: Complicating Honey Bee Research and Resilience Thinking

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Background

As Jake Kosek writes, “Beekeeping is the ugly stepsister of industrial agriculture; it does not play the leading role but is essential for the story” (Kosek 2019, 149). However essential to the story it may be, there is an increasing murmur among entomologists, beekeepers, and the public that honey bees are in danger. There is truth to this claim, and there is also tension. Roughly 40 percent of US honey bee colonies are lost every year due to a confluence of known or unknown sicknesses caused by *Varroa* parasites, American Foulbrood, pesticide fallout, fungal infections, or mismanagement. However, entomologists argue that because science and technology has allowed honey bees to persist, year after year, the condition of the honey bee has not truly approached crisis levels. As a field assistant in a honey bee lab at the University of Wisconsin-Madison in the summer of 2019, I saw these tensions play out before my own eyes, and proposed a Summer Scholars research project to investigate them further.

Methods

Because of the COVID-19 pandemic, I was not able to carry out the research I had originally planned, which was to work in the UW-Madison entomology lab and spend my days doing honey bee research with other entomologists. Instead, I resorted to three avenues of research: 1) Zoom interviews with ~25 entomologists across the country and ~4 beekeepers (commercial and hobbyist), 2) completion of a reading list containing literature on multispecies ethnography and animal rights, and 3) an auto-ethnographic beekeeping experiment. The interviews were guided by a collection of questions about research practices, personal experiences with honey bees, and opinions on the honey bee crisis.

Me, holding a frame of the honey bees I kept this summer in the farmlands of southern Wisconsin, part of my autoethnography of beekeeping.

Discussion

During the process of this research, many interesting themes and provocative questions were raised, including but not limited to: the effects of the commercialization of the image of the honey bee, the consequences of using or not using the word “crisis” to define the honey bee condition, the state of the industrial honey bee as it relates to disability rights scholarship, and more. However, for the purposes of this poster I would like to focus on a specific research initiative being done at the University of Minnesota’s honey bee lab, and use that case study to investigate and raise questions about honey bee lab practices and the creation of a “better bee.”

A banner on the University of Minnesota’s Honey Bee Lab’s website, advertising the Minnesota Hygienic Bee Line.

A Solution “Within the Bees Themselves”

One of my interviewees was Gary Reuter, who manages the honey bee colonies at the University of Minnesota. During our interview, I asked him what he thought the solution was to the state of the bee, and he answered that his lab is “hoping the solution is actually within the bees themselves.” Reuter is instrumental to a team of scientists there who have succeeded in breeding a genetic line of Hygienic Bees—bees that display hygienic behavior uncap diseased brood cells while diseased pupae are still developing, effectively killing most diseased pupae and preventing diseases such as American Foulbrood, chalkbrood, or even Varroa infestations from becoming widespread in the colony. Queens from the MN Hygienic Line can be purchased by beekeepers across the country and are advertised as gentle, easy to manage, and good at producing honey (Spivak and Reuter 2008). The goal of this program, as stated by Dr. Spivak, is to reduce or eliminate the use of antibiotics and pesticides by beekeepers (Spivak and Reuter 2008).

Industrial Honey Bees and “Resilience”

The Minnesota Hygienic Bee Program uses genetic knowledge and breeding techniques to generate a new honey bee—one which is able to do its own damage control when the forces of globalization and industrial agriculture bring parasites and pathogens into a colony. The objective is to create a bee that can eliminate its own diseases with the ultimate end goal of having more surviving bees at the end of the season. Employing a common word used to describe environmental and agricultural problems, the project of Dr. Spivak and her lab is to create a system with more resilience. Resilience thinking in ecological contexts can be thought of in multiple ways, as outlined by Hugo Reinert and Tor Benjaminsen in their ethnography of Norwegian Sámi reindeer pastoralism. One such way is that of a reductionism in which a complex ecological system is reduced to a single biological metric. In the terms of reindeer pastoralism, this single biological metric becomes the weight of individual reindeer. In the terms of American commercial beekeeping, this metric is parasite occurrence. In the case of the honey bee, as well, this reductionism allows for the idea of resilience to release other actors (pesticide companies, the American industrial food system, entomology itself) from the responsibility of making sure that honey bee populations continue to persist.

Evans and Reid call this depoliticizing uncertainty, a discourse which shifts the objective of ecological health to the maintenance of a certain number of bees, no matter the ecological, social, or financial cost. Furthermore, this discourse shifts the vocabulary of environmental health to one that is “knowable in the common vocabulary of capital” (Welsh 2013). Bee parasite occurrence numbers become the metric of bee health and ‘resiliency’ that scientists must pay attention to because it is most easily translatable to the knowledge that matters for capital gain. Lost are other metrics of health that, if given the same gravity, would drastically change the goals of entomologists and Extension departments across the United States.

Going Forward

Science, especially naturalism, is historically about love (Daston 2004). In an illustrious depiction of the scientist who uncovered much of the honey bee’s social behavior, Karl von Frische, Hugh Raffles writes in *Insectopedia* that von Frische would “would lovingly (with another love), painstakingly (with a professional patience), and delicately (with such safe hands) snip their antennae, clip their wings, slice their torsos, shave their eye bristles, glue weights to their thoraxes... manipulating their behavior according to the experiment’s requirement” (Raffles 2010, 173). Contemporary American entomologists seem to be carrying out similar projects, going as far as to manipulate honey bee bodies genetics in the name of “resilience.” The questions become, then—are resilience projects works of honey bee love or animal care? Is it ethical to create a more resilient bee, given that the conditions that require that resilience are constantly worsening? As I continue this research for my senior thesis, I hope to answer these questions and determine how humans and bees can cultivate a truly collaborative and ethical relationship, or if that is even possible in the industrial American food system.

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