

# A STATIONARY FEAST

## Investigating the Relationships Between Honey Bees and Their Predators

by PETER KEILTY



A female yellow garden spider, *Argiope aurantia*

Whenever I see a spider hanging out on one of my hives, I'm reminded of a time I learned a little about myself as a beekeeper, and that I shouldn't presume that we are all exactly alike in our approach to this ancient art of ours. Although it still amuses me to this day, it is something that happened without a laugh, a smile, or even an acknowledgement that it occurred. I was with a friend of mine who has on his property seven hives, which he and I own 50/50. I've been training him as a beekeeper for a couple of years now, and when we check the hives he usually lets me take the lead, content to hang back and learn the ropes. I would learn that day, however, that politeness and deference have their limits.

Two yellow garden spiders had built webs directly over the entrance to one of the top bar hives, tethered to an empty nucleus box carelessly left below the main hive. The females of this species are relatively large and have a fearsome appearance, bearing the ubiquitous yellow and black warning stripes of the animal kingdom. But in their case, these "danger" markings are nothing to worry about unless you're a flying insect. They pose no threat to us, but are adept hunters of honey bees as I've observed through the years.

I had seen these spiders spin webs between the legs of top bar hives before, but this siege taking place at the front entrance was the most brazen, and effective, effort I'd seen yet: perhaps 15 bees, neatly mummified for later consideration. Despite this record tally, I knew it would hardly put a dent in a healthy colony numbering in the tens of thousands. I told my friend that if the hive appeared very weak, we should probably relocate the spiders. Otherwise, we should let nature play out and leave them be.

The hive turned out to be doing great and as I closed it up and returned to the entrance, the spiders and their webs were gone without a trace. My friend gave me a deadpan "nothing to see here" expression that my nine-year-old son would be proud of. I opened my mouth to say something, but he was already halfway to the next hive, and I realized that I had found his "red line" that day. The idea of allowing something to disrupt our hard work, however minimally, was unacceptable to this particular beekeeper.

This encounter raised several questions for me: Does predation such as this affect a bee colony's productivity in a meaningful way? How many species prey on beehives, and what approach should we take for each? Do beehives give an unintentional boost to an area's predator population, and/or increase biodiversity? And what limits do beekeepers have in tolerating these creatures?

Dr. Thomas Seeley, in "The Lives of Bees," summarizes the relationship thus: "Every living system faces a legion of predators, parasites, and pathogens, each of which is equipped with a sophisticated tool kit for penetrating the defenses of its prey or host. In the case of a honey bee colony, there are several hundred species, ranging from viruses to bears, whose members are forever trying to breach the bees' defenses." He goes on to cite the colony's appeal to predators as not only an "immensely desirable target" but also as "a perfectly stationary target."

Over the years I have observed a variety of creatures either preying on honey bees themselves (think crab spiders, ants, assassin bugs, and a host of native Texas birds), using the shelter or elevation of the hive (snakes basking on the hot flagstones the hive sits on, or wasps temporarily escaping the cold by huddling under the hive cover), or a combination of

both (green anole lizards and praying mantises hanging out above the hive entrance, snagging unwary foragers; and the orbweavers mentioned above, spinning their webs between the long legs of top bar hives).

And, perhaps, since I have not had a truly apocalyptic experience with predators (yet), my attitude is more laissez-faire than some. I enjoy the idea that the almost-inexhaustible biomass of the honey bees goes a little way to sustaining local wildlife, but I imagine I would be less tolerant of something with the power to be truly destructive — bears, for example, a real threat in parts of the U.S., Canada and even Europe. I decided to investigate beekeepers' attitudes to this issue, to find where their limits of tolerance lie and how they deal with these threats.

Interestingly, most beekeepers I spoke to did not harbor ill feelings toward these creatures, and went out of their way to live-and-let-live for the smaller predators, and humanely discourage or relocate the larger, more destructive animals. I spoke to Clint Weaver of R. Weaver Apiaries here in Texas about his experiences with predators. He listed skunks, opossums and raccoons as the most destructive culprits, and was entirely unconcerned with smaller predators such as birds, spiders and lizards. The raccoons in particular, with their dexterous paws, wreak havoc on his queen mating nucs, but he traps and relocates up to 70 of them in some years, expending a significant amount of time and energy on this non-lethal alternative. This tale of procyonid redemption comes with a caveat, however: Each year, he and his team select one raccoon offender, which a chef friend of his duly cooks and serves in taco form. Because, well ... Texas. He told me I haven't lived until I've enjoyed a raccoon taco and a beer after a long day of tending hives and, when I



Nigel Morris

A red wattlebird (*Anthochaera carunculata*), the second largest species of Australian honeyeater, enjoys a dragonfly lunch at the Australian National Botanic Gardens.

jokingly asked if it tastes like chicken, he told me it was in fact very similar to bear meat! I declined to ask how he knew that, however.

A little more digging into this initially shocking revelation and I learned that raccoon was once an important staple for Native Americans and early American settlers, and particularly in the South it was an important source of supplementary nutrition for enslaved people. The chef, I was told, is proud of the tradition and I was informed that it is still, to this day, common in poor rural areas.

Wondering what challenges beekeepers in other countries face from predators, I reached out to my friends at Maasai Honey, a Tanzanian organization which empowers local Maasai

women through beekeeping. Their response would probably give even Mr. Weaver and his team pause:

Honey badgers live throughout the different regions of Tanzania, and have different names according to the specific areas: For example, in Swahili, and for people living in the coastal region and Dar-Es-Salaam they are called “nyegere. They are very dangerous opponents to our beekeeping activities because they consume both brood and honey. They also have tough skin which is impervious to bee stings and, due to this toughness, some people here believe that even spears, arrows and bush knives will not penetrate it. Honey badgers not only take food from the beehives, they destroy them completely. At one point, honey badgers were attacking our hives almost daily, so we decided to put cages around all our apiaries and now the colonies are finally safe from them.

“Monkeys, too, feed on our beehives and also on wild colonies. Mostly they wait outside the entrances waiting for forager honey bees, which they capture and eat. Unluckily for the monkeys, they have soft skin which is vulnerable to stings. Many of them, particularly the juveniles, die in this way. On a hive inspection recently, we found several monkeys dead inside the apiary cage. They had somehow got inside, but once they disturbed the honey bees they had nowhere to go, and were quickly overwhelmed.”

It's not only *honey* beekeepers for

whom this is an issue. I spoke to Nick Powell of [Australiannativebee.com](http://Australiannativebee.com), who is a keeper of both honey bees and native stingless bees, an increasingly popular pursuit in his country. He deals with several predators specific to his stingless bees, and also some who deign to dine on his honey bees, too. Bembix wasps will fly past the stingless bee hives and pluck bees from the air, and the fearsomely-dubbed bee killer assassin bug uses its long proboscis to suck the guts from both honey bees and stingless bees. Likewise, honeyeater birds (who, in a perverse twist, snack not only on nectar but also on nectar-collecting bees), toads and geckos will opportunistically take a bite out of stingless bees and their Eurasian cousins. Before I got a chance to raise the question, Nick told me that he generally leaves these smaller predators be, as they “don't take too many bees, and they're a part of nature.”

From the responses I got, it seems that only the larger, more destructive predators are appearing on beekeepers' radar, for the most part. The smaller predators are largely going unseen or being ignored but, since beehives do seem to be hubs of predator activity, it's worth investigating not only the cumulative effects these smaller predators have on a colony's survival, but also the colony's ability to sustain native wildlife. Dr. Carol Landry of The Ohio State University and I are currently conducting a study into this very issue, and hope to update you on our findings in a future issue of ABJ. Since beekeepers' access to protected natural areas is increasingly becoming a thorny issue, with worries about competition with native species, having evidence that honey bee colonies give some native predators a boost might tip the scales in beekeepers' favor.

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Peter's latest initiatives include: creation of the first (of hopefully many) “pollinator neighborhoods,” where an entire community comes together, through beekeeping, to protect pollinators by mindful stewardship of their land; and the Hurricane Dorian Pollinator Conservation Initiative, which again uses beekeeping to promote native pollinator recovery, as well as teaching a valuable skill to local residents affected by this disaster. [Beesforall.com/@beesforall](http://Beesforall.com/@beesforall)



Molly Hagan

A Maasai beekeeper sits beside one of Maasai Honey's apiary “cages,” designed to keep out the formidable African wildlife.