

**Title:** Amazon Web Services: field observations related to arachnid cohabitation

**Author:** Riva Riley (a human person)

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**Abstract:** Humans and arachnids have had a long, tense coexistence that stretches out over the entirety of the humans' relatively puny evolutionary history. Behavioral studies even suggest that humans have an innate fear of arachnid locomotion, and it has been demonstrated many times that humans recoil instinctively when they see a spider scuttling along, minding its own business. Here I present field observations made in the Peruvian Amazon Rainforest, Madre de Dios locality. My field experience provides evidence that the instinctive response humans feel toward arachnids may be reversed, and that an explicit symbiosis can form between humans encroaching on wild territory and the spiders that colonize their easily infiltrated dwellings. This symbiosis provides the spider with easily navigable terrain and a steady supply of prey (mostly insects drawn by the crumbs and refuse of human lifestyles), and provides to the human a cleaner environment without the annoyance of pests like roaches and the potential harm of disease vectors, like mosquitoes.

**Experimental subjects:** Unwilling in both cases, the subjects of this case study were the author, a field scientist in the Amazon rainforest, and an adult wolf spider the author called Octavio starting from day 11 of their cohabitation.

### **Catalogue of interactions:**

Week one: I discovered the den of the 20cm long (torso ~7.5cm longitudinally, legs 10mm in circumference and well-guarded with numerous bristles) wolf spider on the second evening after my arrival the Centro de Investigación y Capacitación Río Los Amigos (CICRA). It was three hours past sunset and the only light came from my small flashlight- I saw in the thin beam of my light that the hollowed out area behind my sink was crawling (literally) with a beheaded cockroach carcass. I slowly turned my head, and the 20cm wolf spider was whirling down my wall. I shrieked and lifted my legs off the ground- it was fortunate I was still on the toilet. My vocalizations did not seem to have any effect on the spider's behavior (though the other scientists did protest). The spider arrived behind the sink, grabbed the cockroach body, and began to eat. I was horrified. The following morning, the spider was still there, as it was the following night, and the morning after that.

Week two: I had been tiptoeing around a spider roughly the size of a Chihuahua for several days now. I was scared to use my own bathroom and began to lose hope that it would leave. I considered asking one of the other scientists to remove it for me, but I did not want to lose what we colloquially referred to as 'field biologist trail cred' on a spider (the social dynamics and hierarchies of field stations are the subject for another paper). I also considered using my heavy snake-proof boots to pummel it to death, but when I got a look at the hulking scaffold of spider flesh I was up against, I became concerned. If I failed to defeat the spider, I might start an escalating series of antagonistic interactions whose natural end I did not want to discover. I

began to use my bathroom carefully, noting the spider's habits. The spider was mostly nocturnal, and so I did not use the bathroom during the night for several days. Its den is kept mostly clean- it eats or removes stray insect parts. At the end of the week I discovered that singing a soft song and shining my light alerts the spider to my presence, which it has also decided to tolerate. As a response to those stimuli, the spider retreats to its den, and so I learn how to use my bathroom while sharing the territory. At the end of the week I named the creature 'Octavion'. The other field scientists all complained about cockroaches getting into their luggage; I had no idea what they are talking about.

Week three: Octavion and I have come to know one another. I have composed a specific song to sing when communicating with the spider, and he seemed to respond differently to this song as compared to ABBA's 'Dancing Queen'. I talked to him as I brushed my teeth and combed my hair, and he would cue in to the vibration patterns of my voice and sit on a ledge to listen. On the last day of this week I awoke in the middle of the night only to see Octavion's underbelly mere inches from my face- he had climbed onto my mosquito net. Disquieted but not terribly so, I fell back asleep, and from here on out, I receive notably fewer mosquito bites through the netting in the nighttime. Octavion consistently chooses not to bite me through the mosquito net.

Week four: A second wolf spider arrived in my room. I was not enthusiastic, as it sat on my hairbrush and could jump over a meter in a single bound. It was gone within a few hours, and Octavion spent longer than usual in its den. I wondered if Octavion were female, and how I would deal with baby spiders. I began thinking of ways to work out a system for inviting guests over. I have already alerted my friends at the field station to follow appropriate protocol if we are congregating in my room in the evening.

Week five: With no parting communication, Octavion has gone. His den is empty and I spotted a roach in my cabinet. This made sense, as he was a spider, and spiders do not communicate information like this. Nonetheless, I experienced a sense of loss. Another field scientist mentioned a large wolf spider lurking in a different bathroom. I hoped Octavion was happy without me, but not too happy.

Weeks six-eight: Octavion eventually leaves the station. I try not to worry about him, as he is a spider, and cannot worry about me.

### **Discussion:**

My room had significantly fewer pests during the time of Octavion's cohabitation, including cockroaches, cicadas, crickets, and beetles.

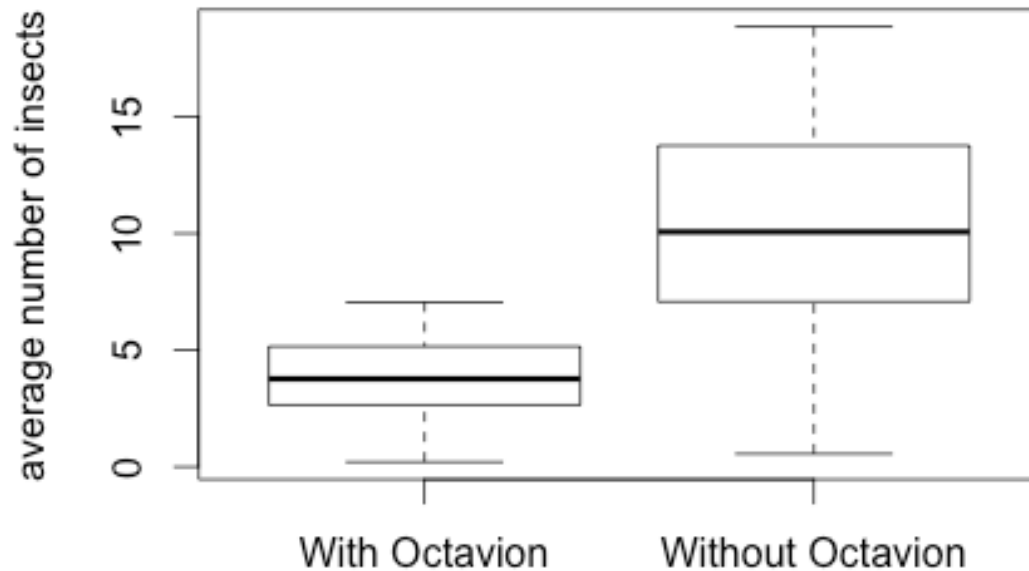


Figure 1: average number of insect pests in my jungle bedroom with Octavio and without Octavio ( $p=0.02$ )

Octavio was not messing around. My affection for him seems unnatural to other humans, and it requires effort and coaxing to get others to appreciate the great service he did for me. In fact, I wonder if my affection was not simply an adaptive response to help overcome humanity's aversive reaction to arachnids in the face of their overwhelming benefit. If other humans could tolerate our arachnid brethren more openly, fewer pests and insect bites might become the norm. I believe there is a path to more directed mutualisms between spiders and humans that might completely change life as we know it. Spiders are small and mobile, and can access areas humans cannot. We should take advantage of this tremendous resource literally crawling at our feet (don't jump!). By establishing communications between humans and arachnids, we may be able to harness their ick factor for our own good. These associations will minimize potentially dangerous insect bites and provide companions for the people they live with. To take advantage of an arachnid association, I intend to establish more formalized communication protocols to help cement the bond between human and arachnid in the modern era.