

Smokey, With Toxic Searing Undertones

The Schmidt Pain Index characterizes insect stings with wry, winking reviews worthy of a wine snob

Growing up in California's sunbaked San Joaquin Valley, my friends and I used to spend our summers whacking wasp nests out of our neighbors' bushes with plastic baseball bats. For money. Paper wasps, I think they were. The insects infested the backyard of every house on my block. We'd show up at our neighbor's doorstep, our little arsenal of whiffle ball bats, oven mitts, and trash bags in tow, and peddle our services—five bucks per nest removal. Amazingly, people let us in their yards, which we'd usually annihilate after tearing apart landscaping searching for hidden nests and belting furious wasps out of mid-air.

We got stung by those wasps. We got stung a lot. It felt like someone shot a red-hot thumbtack out of a cannon into your flesh from point-blank range.

Justin Schmidt, an entomologist at the U.S. Geological Survey's Southwest Biological Institute in Tucson, Arizona, knows exactly what the paper wasp sting feels like. "Burning, throbbing, and lonely. A single drop of superheated frying oil landed on your arm" is how he describes it. Yeah, that's about right. And Schmidt would know: He's devoted his entire career to studying the *Hymenoptera* order of insects—stinging bugs—and their venomous defense mechanisms. His devotion is such that he's been stung by more than 80 different species of ant, wasp, and bee, many hundreds of stings in total as he's traveled the world seeking the sting-bearing critters. Occasionally he'll suffer the stings on purpose, but only rarely, especially for the most painful stings. Those usually happen by accident during specimen collection or particularly close observation. "All those stings were readily delivered without my help," Schmidt told me.

Schmidt has suffered enough slings and arrows of *Hymenoptera* to be able to categorize their particular flavors in what he calls the Schmidt Pain Index, a sort of poetic encyclopedia of misery. Each sting gets a remarkably florid description and a numerical rating from one (mud dauber wasp: "Sharp with a flare of heat. Jalapeño cheese when you were expecting Havarti") to four (bullet ant: "Like walking over flaming charcoal with a three-inch nail embedded in your heel").

Schmidt began his pain journal in 1973. He launched his academic career as a chemist, but lab work was tedious and

he fondly remembered his childhood of chasing yellow jackets around his childhood home in Pennsylvania, so he made the switch to entomology. He enrolled as a grad student at the University of Georgia, started studying bugs, and developed his idea for the pain index after being stung by harvester ants (level 3: "Somebody is using a power drill to excavate your ingrown toenail") while trying to dig one of their colonies out of the ground. The sensation, so much more intense than pain from the stings of yellow jackets he experienced as a child (level 2: "Imagine WC Fields extinguishing a cigar on your tongue"), shocked Schmidt, and he was convinced the world needed a scale for interpreting the pain of a stinging insect.

His quest to document the stings of *Hymenoptera* has placed him in situations that would horrify those with even mild entomophobia. Once, in the mountains of Costa Rica, Schmidt donned a beekeeper's veil and dangled from a tree branch perched over a cliff while trying to nab a nest of black wasps. They reacted by "spraying streams of venom through the mesh of the veil directly at my eyes." At other times, curious about the defense mechanisms of non-stinging members of bee, wasp, and ant species, Schmidt would simply pop them in his mouth and eat them to see if they produce a foul taste.

The kings of Schmidt's pain index are the 4s—the tarantula hawk and bullet ant are the most well known. He's of course been stung by both ("Lie down and scream," is his preferred treatment for a tarantula hawk sting) and as a result has little fear of the most painful stings. The only bugs that scare him are mosquitos and ticks, as they carry disease. The intense pain of stings, Schmidt argues, serves not only to drive away a potential predator, but to spark a fearful memory in those that have been stung so that the next time they encounter, say, a tarantula hawk, they'll steer well clear. "The long-lasting excruciating pain sends a message that the insect should be recognized, remembered, and, thereby, avoided at all costs," he writes.

It worked for the paper wasp. Decades after battling their angry hordes, I so much as hear a wasp-like buzz and I'm off in the opposite direction. Message received.

BY JUSTIN HOUSMAN

THE SCHMIDT INSECT STING PAIN INDEX

The Schmidt Pain Index was developed by Dr. Justin Schmidt, an entomologist, as a method for comparing the pain of various different insect stings he experienced during his work. The scale runs from 1 to 4, with four being the most painful. Pain can be subjective, varying from person to person, and this scale is therefore not absolute.



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