

The Scientist: NewsBlog:

A flashy defense

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There are many ways to ward off a predator, but perhaps none so enthusiastic as the Giant honeybee's team "wave."

New research, [published this week](#) in *PLoS One*, demonstrates that a communal motion called the shimmering effect, in which hundreds of bees successively flip their abdomens upwards in a rapid wave, protects a hive by startling wasps away.

"People have known for a long time that the Asian species of honeybees do this shimmering," said [Michael Breed](#), an ecologist at the University of Colorado who was not involved in the study, "but nobody ever looked in a detailed way at how the behavior is organized or its exact relationship to the wasp."

First author [Gerald Kastberger](#) believed the shimmering effect (which looks something like a crowd of tiny sports fans doing the wave) was a defensive reaction to an approaching hornet. "Giant honeybees nest out in the open," said Kastberger, a zoologist at the University of Graz in Austria, "so they've been forced to develop defense strategies."

To prove his intuition quantitatively, Kastberger's team filmed 450 interactions between Giant honeybees, *Apis dorsata*, and hornets, *Vespa* species, at two bee colonies at the University of Kathmandu in Nepal. Using frame by frame statistical analyses of the film, the researchers assessed the behavior of both predator and prey. Analysis of bee behavior showed the nearer a wasp came to the nest, the bigger and more forceful the bees' shimmering. Assessment of hornet behavior showed that shimmering causes wasps to turn from the nest and accelerate away. The nearer they came to the hive, the more the hornets were affected by the shimmering.

You can watch Kastberger's videos of honeybee shimmering and hornet reactions [here](#).

"I'm impressed by the rigor of the analysis," said [Greg Hunt](#), an entomologist at Purdue University in Indiana. "They've analyzed [the interaction] to the Nth degree."

The paper is an important and unique addition to our knowledge about honeybee behavior, said Breed. "A lot of honeybee defensive behavior is oriented toward birds and mammals," who go after the hive itself as a food source, he said. Shimmering is directed at another insect, hornets, which are not trying to rob the combs but simply want to eat the bees. "It's a docile strategy," said Kastberger - it's good for the [honeybee](#) because it requires less energy than an attack flight and poses minimal risk to individuals.