

Asian honey bees defend threat by banding together and shaking abdomens

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Theory suggests that signals between prey and predator can coevolve. In order for an 'I see you' display to evolve, the prey species must be able to back up its 'I see you' with action, by outrunning the predator, collective mobbing, escape to a refuge, or any other mechanism that prevents the predator from making a kill. Without such action, even if it is rarely applied, it is difficult to see how an 'I see you' display could evolve.

Prof. TAN Ken, a professor with Yunnan Agricultural University and a senior visiting scholar of Xishuangbanna Tropical Botanical Garden (XTBG), and his international colleagues argue that an 'I see you' signal has co-evolved between the Asian hive bee, *Apis cerana*, and its [hornet](#) predator, *Vespa velutina*. They tested some predictions of the 'I see you' display hypothesis using *A. cerana*, *A. mellifera*, *Vespa velutina* and a nonthreatening butterfly species, *Papilio xuthus*. Colonies of the two honeybee species were exposed to free-flying and tethered hornets and to tethered butterflies.

Shaking (vibrating their abdomens from side to side for a few seconds) by *A. cerana* guards appears to be an 'I see you' display that significantly reduces the approach of the hornet *V. velutina* and reduces bee predation. The predictions whether the shaking is indeed a co-evolved 'I see you' display between bee and hornet were proved by the behavior of [bees](#) and hornet. The guard's shaking display increased with proximity of the hornet to the nest. Hornets were repelled by the signal, even though they remained in the vicinity of an *A. cerana* colony longer than they did in front of an *A. mellifera* colony. The shaking display decreased bee

predation. *Apis cerana* guards barely responded to the presence of a butterfly moving in front of their colony as might a hornet.

Furthermore, hornets were more likely to approach *A. mellifera* colonies, which cannot produce the shaking display, than *A. cerana* colonies, and were more successful at catching *A. mellifera* foragers and guards than *A. cerana* foragers and guards.

The researchers concluded that the signals between Asian honeybees and their hornet predators are good examples of ‘I see you’ displays, which could be useful model systems for further studying predator–prey signaling.

More information: The study entitled “An ‘I see you’ prey–predator signal between the Asian honeybee, *Apis cerana*, and the hornet, *Vespa velutina*” has been published online in *Animal Behavior*, [doi:10.1016/j.anbehav.2011.12.031](https://doi.org/10.1016/j.anbehav.2011.12.031)

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