Video: Huge enemy spotted! The surprisingly sophisticated warning buzzes of bees

Many birds and mammals sound alarms to let others know they've spotted a predator. Some species even **modulate their alarm calls**, increasing the pitch or frequency depending on the size and distance of the attacker. Now, scientists have discovered that Asian honey bees (*Apis cerana*) also tune their signals to tell their hive-mates about the type and degree of danger and the context. It's the first time that such sophisticated alarm signaling has been found in a social insect. Only 6 years ago, researchers discovered that foraging European honey bees, *A. mellifera*, make "stop signals" in the hive if they've encountered a spider, for example, on a flower. They head-butt individual bees and give a brief, vibrating pulse—an alarm that tells the others not to travel to the dangerous food source. To find out whether some honey bee species can alter these alarms depending on the type of predator, the scientists studied the Asian bees, which must deal with multiple types of predatory, hive-attacking hornets, including the world's largest hornet. In China, the researchers set up experiments that allowed either large or small hornets to go after foraging bees or nests. When the attacked bees returned to their hives, they made stop signals that increased in pitch according to the size of the predator (as the bee with the red dot is doing in the video above), inhibiting other bees' waggle dances (which tell bees where to forage), **the scientists report online today in *PLOS Biology***. And when facing wasps at the entrance to the hive, the guard bees and returning foragers made distinctive and lengthy stop signals that let others know danger lurked outside; the bees also made more stop signals if a giant hornet was attacking. In response, foragers ready to leave the hive froze in place, remaining in the safety of the nest, while nest defenders formed a ball around the wasp, and attempted to kill it with their combined body heat.