

# Elephants ready to rumble at sound of bees (w/ Video)

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(PhysOrg.com) -- For the first time elephants have been found to produce an alarm call associated with the threat of bees, and have been shown to retreat when a recording of the call is played even when there are no bees around.

A team of scientists from Oxford University, Save the Elephants, and Disney's Animal Kingdom, made the discovery as part of an ongoing study of elephants in Kenya. They report their results in the journal *PLoS One*.

'In our experiments we played the sound of angry bees to elephant families and studied their reaction,' said Lucy King of Oxford University's Department of Zoology and charity Save the Elephants, who

led the research. ‘Importantly we discovered elephants not only flee from the buzzing sound but make a unique ‘rumbling’ call as well as shaking their heads.’

The team then looked to isolate the specific acoustic qualities associated with this rumbling call and played the sounds back to the elephants to confirm that the recorded call triggered the elephants’ decision to flee even when there was no buzzing and no sign of any bees.

‘We tested this hypothesis using both an original recording of the call, a recording identical to this but with the frequency shifted so it resembled a typical response to white noise, and another elephant rumble as a control,’ said King. ‘The results were dramatic: six out of ten elephant families fled from the loud speaker when we played the ‘bee rumble’ compared to just two when we played a control rumble and one with the frequency-shifted call. Moreover, we also found that the elephants moved away much further when they heard the ‘bee’ alarm call than the other rumbles.’

The researchers believe such calls may be an emotional response to a threat, a way to coordinate group movements and warn nearby elephants - or even a way of teaching inexperienced and vulnerable young elephants to beware. Further work is needed to confirm whether the rumble call is used for other kinds of threats, not just bees.

‘The calls also give tantalising clues that elephants may produce different sounds in the same way that humans produce different vowels, by altering the position of their tongues and lips,’ said Dr Joseph Soltis of Disney’s Animal Kingdom. ‘It’s even possible that, rather like with human language, this enables them to give superficially similar-sounding calls very different meanings.’

Earlier Oxford University research found that elephants avoid bee hives

in the wild and will also flee from the recorded sound of angry bees. In 2009 a pilot study led by King showed that a fence made out of beehives wired together significantly reduced crop raids by elephants. The team hopes that the new findings could help develop new ways to defuse potential conflicts between humans and elephants.

Despite their thick hides adult elephants can be stung around their eyes or up their trunks, whilst calves could potentially be killed by a swarm of stinging bees as they have yet to develop this thick protective skin.

**More information:** A report of the research, entitled 'Bee threat elicits alarm call in African elephants', is published in PLoS One.

Provided by Oxford University

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