

How the 'mute' cicada sings

February 25 2015



This is a still from a video of a male cicada emitting four impact sounds. Credit: Luo et al.

"Mute" cicadas may use the sound of wing impact to communicate, according to a study published February 25, 2015 in the open-access journal *PLOS ONE* by Changqing Luo from Northwest A&F University, China, and colleagues.

Most male [cicadas](#) use specialized physical mechanisms, like the tymbal and/or the stridulatory organs, to produce loud and diverse sounds for communication. "Mute" cicadas from the genus *Karenia* do not have any specialized [sound](#)-producing structures, but the name is somewhat

misleading, as they are still able to produce sounds. The authors of this study analyzed sounds produced by the male cicadas and their body shape to investigate how a species of "mute" cicada *K. caelata* emits acoustic signals, as well as determine their function in communicating with other cicadas.

The researchers discovered that *K. caelata* produces wing impact sounds by banging the forewing costa against the operculum, in what may be a newfound sound-production mechanism for cicadas. They also found that the body parts used to produce the sound had a modified shape when compared to cicadas with tymbal or stridulatory organs. The acoustic playback and behavioral observations suggest that the wing impact sounds of *K. caelata* are used in communication with cicadas and function as calling songs. The newfound sound-production mechanism expands our knowledge on the diversity of acoustic signaling behavior in cicadas, and indicates the need for more bioacoustic studies on cicadas that lack the tymbal mechanism.

More information: PLoS ONE 10(2): e0118554. [DOI: 10.1371/journal.pone.0118554](https://doi.org/10.1371/journal.pone.0118554)

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