

Study shows orangutans use their hands to make their voices deeper

March 20 2015, by Bob Yirka



Wild male Sumatran orangutan in the Ketambe research area, Indonesia. Credit: Adriano Lameira.

(Phys.org)—A team of researchers with affiliations to institutions in Belgium, the U.K. and The Netherlands has found that orangutans use hand placement around their mouths to make their voices deeper, perhaps attempting to seem as if they are bigger to threats. In their paper published in *The Journal of Experimental Biology*, the researchers

explain their study and why they believe their results might offer clues about the development of language in a species.

Biologists studying orangutans have noticed before that the apes sometimes cup their hands around their mouths when making kissing noises. While some may have assumed the gesture was friendly, later research showed it was a means by which the apes were warning others of the presence of something threatening, such as human beings. In this new effort, the researchers tested the idea that cupping the hands around the mouth made the animal seem more impressive, perhaps, to deter those presenting threats from coming closer.

To learn more, the researchers used mathematical modeling to help them create a real world physical model of the vocal parts used by an orangutan to create its kissing noises and then to model the impact of using hands to modify the [sound](#) that came out. Recording analysis was used to determine the sound processing that was taking place and the impact it had on tone. The team found that cupping of the hands served to extend or elongate the path traveled by the sound (as occurs with musical instruments) and thus caused it to come out sounding lower. They also found that their model showed it was possible to create the right overtones, a key component of sound made by larger animals. They then used sound editing equipment to remove extraneous noise from recordings of [orangutans](#) in the wild making their kissing noises and compared them to their models—doing so showed a match.

The team had faithfully recreated the biological mechanism used by the apes and showed that the technique they used could indeed be viewed as a means of modifying communication on purpose to cause a desired outcome. Using their hands to change how they sound to threats, the team suggests, is perhaps a form of a precursor to more advanced communications skills, if that is, they are not doing it by accident.

More information: Acoustic models of orangutan hand-assisted alarm calls, *The Journal of Experimental Biology*, jeb.biologists.org/content/218/6/907

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