

Animals who try to sound 'bigger' are good at learning sounds

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Some animals fake their body size by sounding bigger than they actually are. Maxime Garcia from the University of Zurich and Andrea Ravnani from the Max Planck Institute for Psycholinguistics studied

164 different mammals and found that animals that lower their voices to sound bigger are often skilled vocalists. Both strategies—sounding bigger and learning sounds—are likely driven by sexual selection, and may play a role in explaining the origins of human speech evolution.

"If you saw a chihuahua barking as deep as a rottweiler, you would definitely be surprised," says Andrea Ravignani, a researcher at the MPI and the Dutch Sealcentre Pieterburen. Body size influences the frequency of the sounds [animals](#) produce, but many animals found ways to [sound](#) smaller or bigger than expected.

"Nature is full of animals like squeaky rottweilers and tenor chihuahuas," explains Ravignani. Some animals fake their size by developing larger vocal organs that lower their sound, which makes them sound larger than you would expect. Other animals are good at controlling the sounds they produce. Such strategies (called dishonest signalling by biologists) could be driven by sexual selection, as males with larger body size or superior singing skills (hitting very high or low notes) attract more females (or vice versa).

Garcia and Ravignani wondered whether some animals may have learned to make new sounds as a strategy to attract mates. Few [animal species](#) are capable of vocal learning, among them, mammals such as seals, dolphins, bats and elephants. For instance, seals can imitate sounds, and some seals copy call types of successfully breeding individuals. Would animals who often 'fake' their body size also be the ones capable of learning new sounds?

The researchers analysed the sounds and [body](#) size of 164 mammals including mice, monkeys, and water-dwelling mammals such as the subantarctic fur seal and the Amazonian manatee. They combined methods from acoustics, anatomy, and [evolutionary biology](#) to compare the animals in the dataset.

The scientists found that animals who fake their [body size](#) are often skilled sound learners. According to Garcia and Ravignani, their framework provides a new way of investigating the evolution of communication systems. "We want to expand our theory to take into account other evolutionary pressures, not just [sexual selection](#)," adds Ravignani. "We also want to replicate our preliminary findings with more mammals and test whether our ideas also apply to birds or other taxonomic groups."

In their position paper, Garcia and Ravignani suggest that there may be a link to human speech evolution. "We believe that a dishonest signalling strategy may be a first evolutionary step toward learning how to make new sounds of any sort," says Garcia. "Speculatively, it brings us closer to understanding human speech evolution: Our ancestors may have learned how to speak after learning how to sound bigger or how to hit high notes."

The study is published in *Biology Letters*.

More information: Acoustic allometry and vocal learning in mammals, *Biology Letters*, [royalsocietypublishing.org/doi1098/rsbl.2020.0081](https://royalsocietypublishing.org/doi/10.1098/rsbl.2020.0081)

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