

Owls and lizards lend their ears for human hearing research

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Lizards and owls are some of the animal species that can help us to better understand hearing loss in humans, according to new research out of York University's Department of Physics & Astronomy in the Faculty of Science.

"These [animals](#), just like [human](#) beings, emit sound from their ears," notes Professor Christopher Bergevin, in the Centre for Vision Research, adding, "Remarkably, the ear not only acts as a detector of sound, but also generates and emits faint sounds called otoacoustic emissions (OAEs) that can be detected with a sensitive microphone in the ear canal."

Typically only healthy ears emit sound, allowing OAEs to be commonly used for clinical applications such as newborn hearing screening. However, the biophysical principles underlying the sound generation are not well understood, limiting their potential use, according to the researcher.

For their study, Bergevin and his co-researchers selected barn [owls](#) and green anoles from the many varieties of species which produce OAEs.

"The non-invasive nature of the measurements is a bonus too—we can obtain fantastic and revealing physiological data harming nary a feather or scale," says Bergevin, who worked on the project with German researchers Professors Geoffrey Manley and Christine Koppl at the School of Medicine and Health Sciences, Carl von Ossietzky University.

The researchers compared the measured sounds with those from humans, and found that the emissions originate from similar biomechanical principles, despite striking differences in the anatomy of the ear. The study, "Salient features of otoacoustic emissions are common across tetrapod groups and suggest properties of generation mechanism," was published today, March 2 online at the noted science journal *Proceedings of the National Academy of Sciences (PNAS)*.

More information: PDF of *PNAS* paper:
news.yorku.ca/files/pnas.201418569.pdf

Provided by York University

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