

Tiny crooners: Male house mice sing songs to impress the girls

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Male house mice produce melodious songs to attract mates. Unfortunately for us, because the melodies are in the ultra-sonic range human ears cannot detect them. Through spectrographic analyses of the vocalizations of wild house mice, researchers at the University of Veterinary Medicine, Vienna have found that the songs of male mice contain signals of individuality and kinship. Their results appear in the journal *Physiology & Behavior* and in the *Journal of Ethology*.

It has been known for some time that house mice (*Mus musculus*) produce ultrasonic vocalizations (USVs) during courtship but it has generally been assumed that these are no more than squeaks. However, recent spectrographic analyses have revealed that USVs are complex and show features of [song](#). Although the vocalizations are inaudible to human ears, when playbacks of recorded songs are slowed down their similarity to bird song becomes striking. Frauke Hoffmann, Kerstin Musolf and Dustin Penn of the University of Veterinary Medicine, Vienna's Konrad Lorenz Institute of Ethology aimed to learn what type of information is contained in males' songs for the discerning ear of the female mouse to detect. Their initial studies, the first to study song in wild mice, confirmed that males emit songs when they encounter a females' scent and that females are attracted to males' songs. Additionally, the scientists discovered that females are able to distinguish siblings from unrelated males by their songs – even though they had previously never heard their brothers sing.

In their recent studies, Penn's group recorded and analysed the courtship

calls of wild-caught male house mice for the first time, using digital audio software to examine parameters such as duration, pitch and frequency. They found that males' songs contain "signatures" or "fingerprints" that differ from one individual to another. Moreover, they confirmed that the songs of siblings are very similar to one another compared to the songs of unrelated males, which helps explain how females can distinguish unrelated males. This finding could potentially lead us to understand how female mice avoid inbreeding.

Interestingly, in some species of birds the [males](#) with the most complex songs appear to be most successful at attracting females. Further studies are needed to determine whether the complexity of male mouse vocalizations has an effect on females that is similar to that of "sexy syllables" in birds.

The [vocalizations](#) of wild house mice differ significantly from those of inbred strains of laboratory mice. Wild male mice produce more syllables within high frequency ranges than laboratory mice, a result that is consistent with other studies that find genetic effects on mouse song. "It seems as though house mice might provide a new model organism for the study of song in animals," says Dustin Penn. "Who would have thought that?"

More information: The article "Spectrographic analyses reveal signals of individuality and kinship in the ultrasonic courtship vocalizations of wild house mice" by Frauke Hoffmann, Kerstin Musolf and Dustin J. Penn is published in the journal *Physiology & Behavior* (Volume 105, Issue 3, pp. 766-771). [dx.doi.org/10.1016/j.physbeh.2011.10.011](https://doi.org/10.1016/j.physbeh.2011.10.011)

The article "Ultrasonic courtship vocalizations in wild house mice: spectrographic analyses" by Frauke Hoffmann, Kerstin Musolf and Dustin J. Penn is published in the *Journal of Ethology* (Volume 30, Number 1, pp. 173-180). [dx.doi.org/10.1007/s10164-011-0312-y](https://doi.org/10.1007/s10164-011-0312-y)

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