The wren's song becomes more complex in the city

The European wren (*Troglodytes troglodytes*) is a bird with a very characteristic song, with an intensity that does not tend to co-exist with low-frequency noise. However, researchers from the University of Salamanca explain in a study that their songs have become more complex in cities.

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Chochín común (*Troglodytes troglodytes*) / Wikipedia

Birds in urban areas have to deal with high levels of ambient noise. Some show a certain song flexibility that enables them to reduce interference in their communication.

Scientists at the University of Salamanca (USAL) have analysed the songs of the European wren (*Troglodytes troglodytes*) in three different environments – urban, peri-urban and rural – to assess the impact of noise on their vocalisations. For this purpose, they created an acoustic descriptor measuring song variability.

As Moisés Pescador, a researcher at USAL and co-author of the study, tells SINC: "Our main contribution is a method to record and describe these vocalisation changes, which do not always occur in the same direction: in

some species, noise increases song volume – like humans, who speak louder – and in others, such as wrens, it doesn't."

Song variability increases with the noise of the city, and notes become longer. "Urban wrens develop more complex songs, with higher frequencies and longer notes than rural wrens, while peri-urban birds occupy an intermediate position," Pescador continues.

These changes could be linked to background noise, although there are other possible causes that could also explain them, such as population density. "Maximum frequencies are outside the background noise range and differ among habitats, whereas lower frequencies, unexpectedly, do not," the scientist adds.

Adaptation or imitation?

There are a few possible reasons to explain why urban song complexity increases. "It could be an adaptation to ensure they can be heard and communicate with other individuals due to the presence of a higher quantity, volume and variety of noise."

Another possibility, which does not exclude the former, is that all birds learn to sing from what they hear, and high noise variability leads them to develop more complex songs. "Some species, such as urban sparrows, sing in a very similar way to the sound of traffic lights beeping when they are showing green for pedestrians," the expert explains.

"Our study demonstrates that the changes caused by noise pollution have effects and cause disturbances much more complex than initially thought," he concludes.

References:

Colino-Rabanal V. J., Mendes S., Peris S. J., Pescador M. 2016. Does the song of the Wren Troglodytes troglodytes change with different environmental sounds? *Acta Ornithol*. 51: 13–22. DOI 10.3161/00016454AO2016.51.1.002.

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