This songbird can keep time with the best of them
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The results were published in *Animal Behaviour*. Jackson School Professor Julia Clarke co-authored the study.

Birds don't have songbooks. But some species sing the same tune, chirping notes in an identifiable pattern. For the scaly-breasted wren, the pattern goes like this: an opening blast of chirps followed by alternating intervals of chirps and pauses, with the pauses between each chirp getting progressively longer.

The scaly-breasted wren. Credit: Gonzalo Nazati

When it comes to keeping time, an unassuming species of songbird is on a par with professional musicians, according to new research led by scientists at The University of Texas at Austin.

The study is the first to investigate natural time-keeping ability of an animal in the wild rather than under observation in the lab, with scientists examining the song of the scaly-breasted wren, a small brown bird in Central and South America known for its whistle-like chirps.

The song of the wild birds demonstrated better time-keeping skills than those of mammals and birds trained in captivity. The results underscore the importance of studying animals in both the lab and in nature to get an accurate view of their abilities, said lead author Carlos Antonio Rodriguez-Saltos.

"We should use the power of biodiversity to understand these things while we still can," said Saltos, who conducted the research when he was a postdoctoral researcher at the UT Jackson School of Geosciences.

Lead Carlos Antonio Rodriguez-Saltos with birdsong recording equipment in Ecuador. Credit: Fernanda Duque
Rodriguez-Saltos became familiar with the song of the wren as an undergraduate student in Ecuador when his ecology professor taught him how to identify the distinct pattern among the din of rainforest sounds. Years later, he realized that a unique feature of the wren's song—the steadily growing pauses between the chirps—presented a unique opportunity to delve into the bird's time-tracking abilities.

"It is a really remarkable change from short intervals to long intervals in the same song," Rodriguez-Saltos said.

The pauses between each chirp grow in a predictable way—lengthening by about a half second each time. After the pause reaches about 10 seconds long, the birds then repeat their song from the top.

In laboratory experiments, most animals—including humans—have difficulty determining how much time has passed after just a second or two. In general, the longer an interval of time, the worse animals are at estimating its passage.

The birdsong analyzed in the study came from field recordings. Some were made by Rodriguez-Saltos and co-author Fernanda Duque in Ecuador. Others came from bird aficionados who uploaded recordings of the wren's song online. The data on timing in other animals came from other studies.

Clarke, an expert on evolution of bird vocalization in both living and extinct species, said the research demonstrates the importance of turning to nature to study birds in their natural environments.

"We take wild birds for granted, and natural populations are dwindling, so this is urgent," she said. "This case shows how studying birds can provide huge new insights into cognition and timekeeping."
