

Female Birds Sing, Too

Science is better when it is inclusive

Female birds sing. That is one conclusion of our 2020 study on one of the most abundant, widespread, well-studied bird species in the world: the barn swallow. Despite the well over 1,000 scientific publications about this species, female barn swallow song had never previously been the focus of a research article. Why does it matter that female song has been ignored in this bird that breeds across most of North America? It highlights a **long-standing** scientific bias and helps us think about why that bias **persists**.



Since the beginning of modern birdsong research, the field has focused on the conspicuous songs of male songbirds. Conventional evolutionary theory assumes that across the animal kingdom, males compete for access to females, leading male animals to evolve **exaggerated** traits (like antlers) that help them fight off other males, as well as features (like the fabulous feathers of peacocks) that attract females. Birdsongs can function in both these contexts, and although males may have more elaborate songs than females, this is far from universal. In fact, females sing in at least 64 percent of songbird species, and their songs can serve the same functions as male songs.

Yet many researchers still assume that “the male bird sings, and the female chooses,” with field studies overwhelmingly focused on the more abundant male signals. The most frequent song, however, might not always be the most important, just as a debate can be settled by who had the last word rather than who spoke the most. Our study suggests that the evolution of female barn swallow songs is more important than the evolution of male songs for explaining why the two sexes sound different.



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A second reason for the neglect of female birdsong stems from geographic bias. Any ornithologist or serious birder working in the tropics could tell you that females do sing, sometimes as frequently as males. But early researchers tended to study species near their universities in the Northern Hemisphere. In a large proportion of North American birds, females have lost or reduced their songs, which may represent evolutionary adaptations to **conserve** energy for migration or to focus on breeding during a short season.

A final reason for female birdsong being understudied could be gender. Men have dominated birdsong research from its inception. As more women enter the field, however, they are spurring an **exuberant** surge in the study of female song. Women are much more likely than men to be first authors on papers on female birdsong. The historical lack of diverse participation in science may have contributed to researchers forming **self-reinforcing** assumptions that **impeded** a full understanding of the world around us.

To combat such biases in the scientific canon, we need to make science more accessible to all. For example, if we can make people aware that female birds sing, we will enhance their experience of nature and improve their ability to observe it. In many species, including barn swallows, males and females look similar from a distance but can be **distinguished** by ear. Female barn swallows primarily sing just before they begin **breeding**—knowing that can help observers track the timing of barn swallow nesting, for example. Initiatives such as xeno-canto and eBird collect millions of public observations and audio recordings of birds every year. People who understand the latest science will create better global data sets, which, in turn, will generate better science.

Nonscientists make better observers because they lack preconceived notions. One of us (Benedict) often talks to public groups and finds that birders (“experts”) tend to assume female birds don’t sing, whereas nonbirders tend to assume female birds might sing. Lessons about **authentic** science are ideal for engaging children, in particular, who have yet to absorb existing biases.

One of us (Wilkins) adapted our female songbird research into a free interdisciplinary lesson for grades 5–12 (available at galacticpolymath.com). Wilkins once told a fifth grade math class they were among the first people in the world to explore a data set from a study on how bird vocal pitch decreases with body size, and they **spontaneously** broke into **applause**.

Female birds sing! We need to declare that truth so emphatically because it reflects the constant adjustments to the scientific **consensus** as new facts become available and new voices are added to the conversation. We welcome a future where research, communication and education combine to **deepen** our connections to one another and the natural world.



Essential words for writing and speaking

- 1. Long-standing** - that has existed or lasted for a long time.
The country's long-standing relationship with the US was finally under strain.
- 2. Persist** - to continue to exist.
The belief that the earth was flat persisted for many centuries.
- 3. Exaggerated** (adj) - made to seem larger, better, worse or more important than it really is or needs to be.
Some people make greatly exaggerated claims in terms of power they have not.
- 4. Conserve** - to use as little of something as possible so that it lasts a long time.
Renewable energy resources can help conserve fossil fuels and reduce carbon emissions.
- 5. Exuberant** - (of plants, etc.) strong and healthy; growing quickly and well
Uzbekistan is committed to reach an exuberant economic growth in the long run.
- 6. Impede** – to delay or stop the progress of something.
A number of practical difficulties impeded the process.
- 7. Breed** - (of animals) to have sex and produce young animals.
At this time of year the birds return to the island to breed.
- 8. Applause** - the sound of people clapping their hands repeatedly to show enjoyment or approval of something such as a performance or speech.
The concert hall resounded with cheers and applause.
- 9. Consensus** - a generally accepted opinion or decision among a group of people.
They're trying to build a consensus on the need to improve the city's schools.
- 10. Deepen** - to make something increase or become more serious.
It certainly helped to deepen my understanding of the situation.
- 11. Spontaneously** - in a way that is natural, often sudden, and not planned or forced.
We spontaneously started to dance.
- 12. Authentic** - If something is authentic, it is real, true, or what people say it is.
Authentic materials are one of the key determinants to achieve higher results on any exams.
- 13. Distinguish** - to recognize or understand the difference between two things, or to provide a quality that makes someone or something different or special.
It's important to distinguish between scientific fact and fiction.
- 14. Self-reinforcing** - tending or serving to strengthen itself.
Some assumptions can be seen as self-reinforcing.

