

Fairy-wrens learn alarm calls of other species just by listening

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A male fairy-wren on a twig. Credit: Jessica McLachlan

Birds often eavesdrop on the alarm calls of other species, making it possible for them to take advantage of many eyes looking out for danger. Now, researchers reporting in *Current Biology* on August 2 have found

that fairy-wrens can learn those unfamiliar calls—which they liken to a foreign language—even without ever seeing the bird that made the call or the predator that provoked it. Instead, the birds in their study learned to recognize new alarm calls by listening for unfamiliar sounds within a chorus of familiar alarm calls.

"Alarm calls warn of predators, but here the birds learnt the meaning of the call from the alarm calls of others without needing to see the predator," says Robert Magrath of the Australian National University in Canberra. "This means it is a type of '[social learning](#),' where individuals learn from others rather than through direct experience. In this case, it's even more indirect, because they only need to hear and not see the birds giving the familiar alarm calls. So theoretically they could learn with their eyes closed!"

Magrath's group had long been interested in bird alarm calls and eavesdropping among [species](#). Their previous work showed that birds can learn to recognize other species' calls; it isn't always an innate ability. Their studies showed that fairy-wrens could learn to associate a novel alarm call with danger if they repeatedly saw a model predator at the time they heard the call.

Those studies showed the birds were learning by direct experience. But the research team—also including Dominique Potvin and Chaminda Ratnayake from the Australian National University, and Andrew Radford from the University of Bristol, UK—suspected that birds could also learn from other birds, by listening closely to their calls.



An alert male fairy-wren. Credit: Jessica McLachlan

"It makes sense to learn from others when it is dangerous to learn through direct experience," Radford says. "The current experiment shows that they can," and through the novel process of making associations between different sounds.

The team trained birds in the absence of any [predator](#) by broadcasting unfamiliar sounds in combination with the alarm calls of other fairy-wrens and other bird species. At first, the birds didn't flee from the unfamiliar sounds. But after training, they often did flee to cover upon hearing the sounds. Their experiment showed the fairy-wrens also continued responding equally strongly in repeated tests over the course

of a week.

It wasn't that the fairy-wrens had become warier in general. Rather, they had learned to associate new calls with known alarm calls, without ever seeing the caller or the reason for their call.



An upright male fairy-wren. Credit: Jessica McLachlan

"The results were striking," Potvin says. "They show just how quickly social learning can occur in the wild through listening to alarm choruses, a tactic that's likely to come in handy given how hard it is to see predators and callers in many environments."

Social learning by whatever means can help to explain the widespread eavesdropping seen in nature, the researchers say. The new findings may also be relevant to conservation efforts.

Often, endangered species breed well in captivity only to be taken by predators soon after release. As such, there are now efforts to prepare birds for life in the wild by training them to recognize their predators prior to release. "We think it would also be helpful to train [birds](#) to recognize the alarm calls of other species," Magrath says. Their new study shows just how to go about it.

More information: *Current Biology*, Potvin et al.: "Birds Learn Socially to Recognize Heterospecific Alarm Calls by Acoustic Association" [www.cell.com/current-biology/fulltext/S0960-9822\(18\)30775-9](http://www.cell.com/current-biology/fulltext/S0960-9822(18)30775-9), DOI: [10.1016/j.cub.2018.06.013](https://doi.org/10.1016/j.cub.2018.06.013)

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