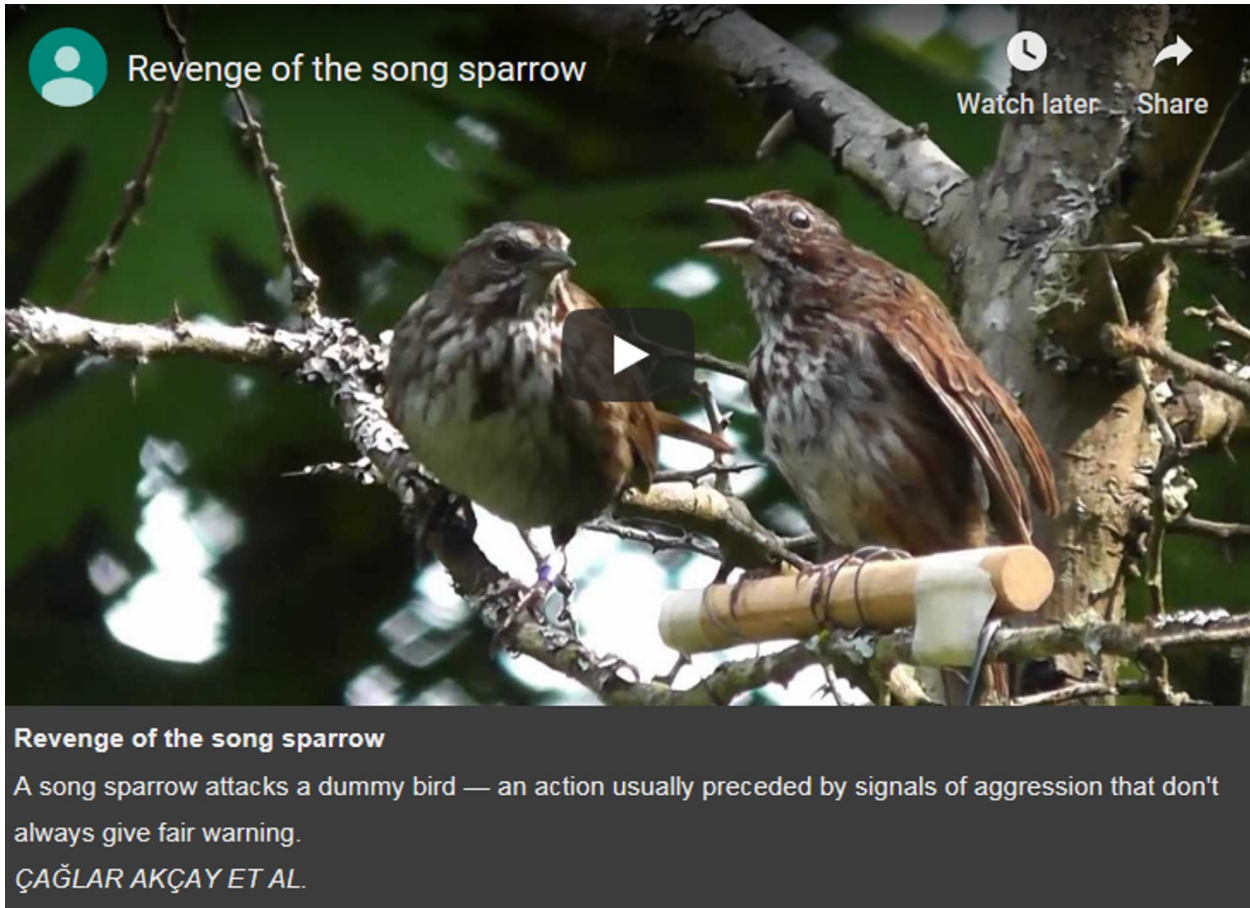


Birds might bluff about intent to attack

Some song sparrows signal their aggressiveness clearly, but others are more circumspect.

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04 December 2013



Some animals, like some people, are more aggressive than others: it is just the way they are. But research suggests that for birds at least, it is not always easy to tell which is which. Some birds are inclined to give out exaggerated signs of their aggressiveness, others to underplay it.

It is rather like the menacing biker who turns out to be a pussycat, or the geek who will break a bottle over your head. But the analogy with humans goes only so far, because many birds announce their aggression about mating and territory not by appearance but through song and gesture.

For example, behavioural ecologist Michael Beecher and his colleagues at the University of Washington in Seattle have observed how the song sparrow (*Melospiza melodia*) indicates its intention to attack a dummy bird (see video above) or a loudspeaker playing bird songs by either vocalizing distinctive 'soft songs' or waving its wings (see video below), both of which are perceived as threatening¹.

Violent tendencies

Both aggressive signalling and the ensuing violent behaviour vary from one bird to another, in a way that correlates with other personality traits such as boldness². But these attributes also vary for a single individual at different times: birds can have particularly grouchy or placid days. Nonetheless, the degree of aggression implied by the precursory signals generally reflects the actual behaviour, in what evolutionary biologists call an honest signal.

But it's not always honest. Earlier this year, Beecher's team showed¹ that there is some variability in aggressive signalling that does not match behaviour: a bird might act stropy but not follow through with an attack.

This variability could be just random, an imponderable quirk of bird brains. But in a paper published today³ in *Proceedings of the Royal Society B*, Beecher and colleagues say it is not.

The researchers studied 69 labelled male song sparrows in their natural habitat during autumn and spring. They played the birds their own songs (which elicit aggression just as 'stranger songs' do) and watched how they responded — whether they displayed soft songs and wing waves, and whether they followed through by attacking the loudspeakers or a dummy bird.

The team found that, after allowing for variations that provide an honest signal of a bird's fluctuations in mood, the remaining variability — if you like, the dishonest part — seems to be displayed consistently by particular birds.

Some have a predisposition, which stays consistent from one season to the next, to give out signals that they intend to be either more or less aggressive than they actually are. Others are more consistently 'honest'. Beecher and colleagues say that this behaviour seems to be a robust characteristic of an individual bird's personality, which they call communicativeness.

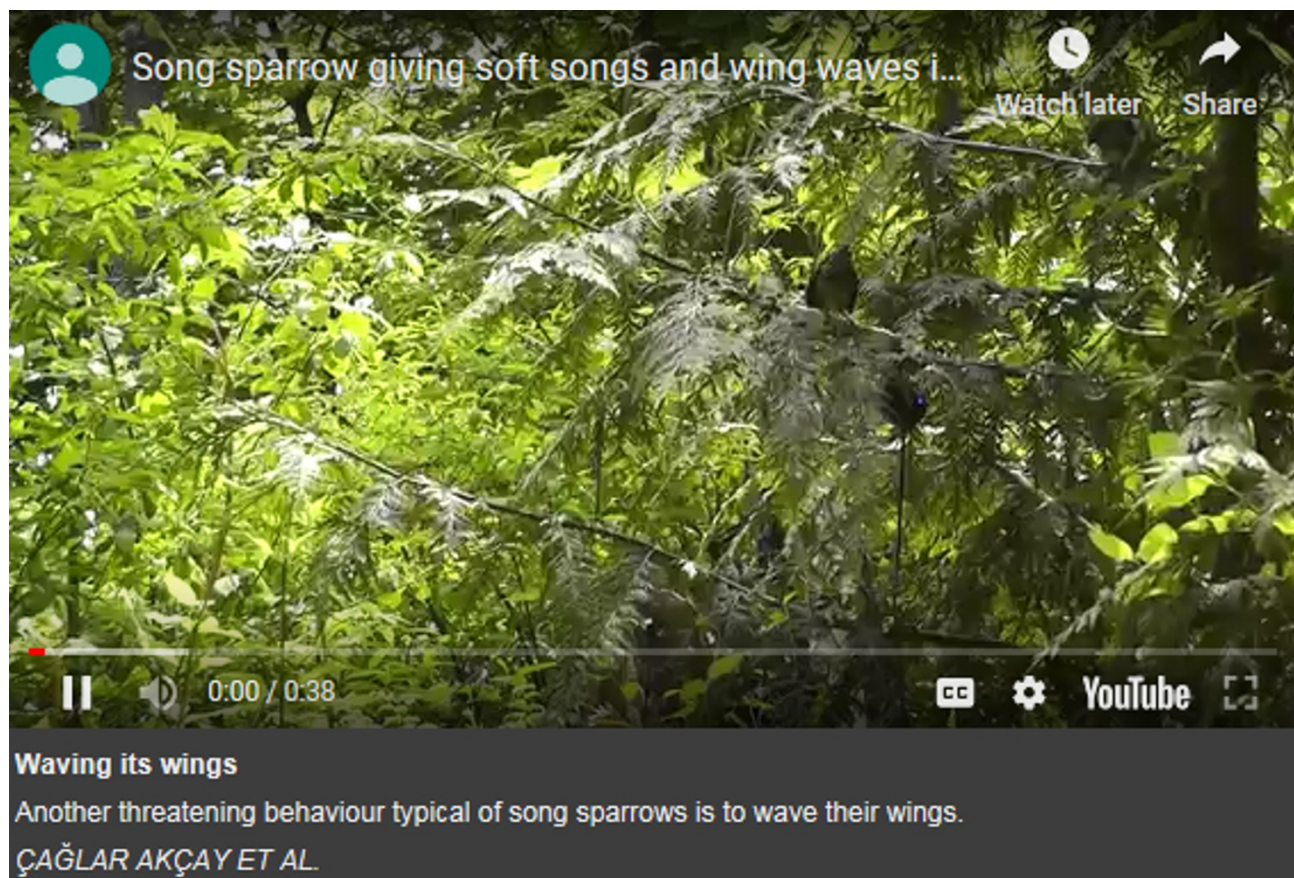
Posturing personality

"This is an important and novel paper," says William Searcy, a behavioural ecologist at the University of Miami in Florida. "I think it's highly likely that behaviours one can define in song sparrows can be identified in other birds, and other animals as well," adds Jeremy Hyman of Western Carolina University in Cullowhee, North Carolina, who is a specialist in bird behaviour.

Habitual 'over-signallers' may be good bluffers who gamble on scaring away rivals that they will not actually dare to fight. 'Under-signallers', who attack without much warning, are harder to explain. "This behaviour is intriguing, and hasn't really been discussed in theory," says Beecher. "There are benefits to signalling — a fight is avoided, potentially beneficial to both parties — so why not do it?"

One possibility is that under-signallers are genuine tough guys, so likely to win a bout that it is not worth their while to bother with scare tactics. In this case, the behaviour could be a beneficial adaptation. But another possibility is that some individuals just are not very good at getting the signalling codes right. If so, it would be not an adaptation, but a mistake.

"I don't think there is enough evidence yet to know whether individual adaptive or error-based theories are more correct," says Hyman. He adds that why personality traits exist at all is still a big question, but he thinks there is enough evidence of links between personality and fitness to conclude that behavioural variation does have an adaptive evolutionary role.



References

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3. Akçay, Ç., Campbell, S. E. & Beecher, M. D. *Proc. R. Soc. B* **281**, 20132496 (2014).