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## Warblers Learn who to Trust

Back in February, I reported on a paper in the journal Current Biology about how Reed Warblers protect themselves from being parasitized by cuckoos.



Now in a follow up paper published in this week's Science, Nick Davies and Justin Welbergen from Cambridge University have found out how the birds learn how to defend themselves by watching their neighbours.

Cuckoos are a problem because they lay their eggs in other bird's nests, and then leave the host birds to bring up their young. This wastes a lot of energy for the reed warblers, but there's no advantage for them. As a result, they've evolved a tendency to mob cuckoos, which makes them less likely to end up bringing up someone else's chicks, even though it's a costly behaviour in terms of energy and it risks exposing the Warblers to predators.

Well when the Warblers mob, they make very loud calls and snap their beaks with a loud clicking sound. They also swoop down at the cuckoos, directly attack them and generally get in a flap.

### Reed Warbler Mobbing

In the new paper they present evidence as to how the Warblers learn when to mob, and when not to mob – as it's a bad idea to waste your efforts mobbing a bird that isn't a threat. Armed with a model of a cuckoo and a model of a parrot (acting as a novel but non threatening stimulus), they set about observing how different birds responded to each.

After establishing a baseline for how each set of birds reacted, they allowed the birds they studied to see how neighbouring birds reacted to the models. If the birds are learning through social stimulus, they said, then mobbing would only increase in response to the model that their neighbours mobbed.

They found that when the neighbouring birds mobbed a model parrot, it made no difference to how likely the focal birds (the ones being studied) were to mob either the cuckoo or parrot models. However, when a cuckoo was mobbed nearby, the rates of cuckoo mobbing greatly increased.

In fact, the naive birds that did not mob a cuckoo on their first exposure started mobbing only after watching their neighbours do so. This is probably because female cuckoos have a certain area in which they will lay eggs, and so a cuckoo in a neighbour's nest suggests a realistic threat.

This suggests that the Warblers are primed to learn new behaviours only when they respond to genuine threats – a tendency also seen in macaques, who learn to be scared of snakes, but can't be taught to be afraid of rabbits!

### References

- Social Transmission of a Host Defense Against Cuckoo Parasitism, Nicholas B. Davies and Justin A. Welbergen. Science 5 June 2009: Vol. 324. no. 5932, pp. 1318 - 1320 DOI: 10.1126/science.1172227

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