

Hunger may inhibit defensive behavior

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Adult southern pied babbler.

Most animals don't spend nearly as much time and energy defending nesting or mating sites against intruders outside the breeding season. That's a given.

But this might be less about having no need to, and more because food is at a premium and they have no choice but to save their energy.

That's the [conclusion](#) of the latest study to find out why so many creatures aren't as territorial when they're not breeding as when they're rearing [offspring](#).

While studying the territorial behavior of pied babblers in the southern African Kalahari during her PhD, Dr. Krystyna Golabek from the University of Bristol noticed big differences between breeding and non-breeding seasons.

During the breeding season the [birds](#) defend their territories to the hilt. Indeed, they get quite worked up, furiously flying at each other, sometimes knocking rivals to the ground.

"There are a lot of battles between neighbouring groups – they get quite vocal and get into fights, even though theory dictates fighting should be a last resort," says Dr. Andy Radford from the University of Bristol, Golabek's supervisor and co-author of the study.

"Krystyna was interested in what drives these seasonal differences. You don't see dramatic interactions between these birds throughout the year, only during the breeding season," explains Radford.

Many scientists tend to assume that most [animals](#) don't bother defending their territories when they're not breeding, because there's little point. Why bother defending nests or mating sites when you don't need them?

But Golabek and her colleagues reasoned that because defensive behaviour takes up so much time and energy, behavioral differences between seasons could be driven by a lack of food and a need to save energy.



Pied babbler.

"The usual assumption is that the difference in behaviour between seasons has an adaptive benefit: being defensive helps you keep the best nest sites for example," explains Radford.

"But we decided to look at it the other way round: is it because they're constrained in some way outside the breeding season?"

To test their ideas, the researchers analysed how fervently the Kalahari pied babblers defended their hard-won territories when they're not breeding.

They found that they spent little time interacting with [rivals](#), and barely reacted when faced with an intruder.

During her studies, Golabek also discovered that the birds aren't as successful at tracking down food outside the breeding season compared

with when they're breeding. This was reflected in the birds' weights.

"The birds are trained to jump on a scale so we can weigh them," says Radford. "It's a great study system: you can run controlled experiments on wild populations."

But when the birds had a ready supply of food – even outside the breeding season – they significantly upped their defensive behaviour against a mock intrusion into their territories – squawking and flying at the perceived impostor.

"What nailed our conclusions was the discovery that the babblers got more defensive when they had access to food outside the [breeding season](#)," Radford says.

The Kalahari pied babblers make a perfect study system. Mandy Ridley, then based at the University of Cape Town, set up the study population in 2003. She color-ringed the birds and got them used to people being around. So much so that researchers can now walk within a few feet of them, with no noticeable effect on their behavior.

Radford added that the birds could also be less defensive because intruders have less energy to challenge territories.

"Being defensive is often a reaction to an intruder. But both could be taking a hit: there could be a constraint on the [intruders](#) as well," he adds.

"And this could be the same for primates, or other cooperative species. There's no reason to think this is bird-specific, because most [creatures](#) are food-limited at some point during the year."

The study is published in *Animal Behavior*.

Golabek is currently studying in Botswana.

More information: K.A. Golabek, Food availability affects strength of seasonal territorial behaviour in a cooperatively breeding bird, *Animal Behavior*, published online 13 January 2012, [doi: 10.1016/j.anbehav.2011.11.034](https://doi.org/10.1016/j.anbehav.2011.11.034)

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