

New study reveals how bumblebees steal birds' nests

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A new study highlights the 'parasitism by theft' of bumblebees that invade birds' nests and claim them as their own. Their warning buzz helps bumblebees to "scare" the bird away from the nest. The work by Piotr Jablonski and colleagues, from the Laboratory of Behavioral Ecology and Evolution at Seoul National University in South Korea, is published online in Springer's journal, *Behavioral Ecology and Sociobiology*.

Conspicuous warning signals - visual, auditory or mixed - help prey to deter predators by signaling the presence of defenses (chemical, mechanical, etc). These warning signals help the predator to remember how to recognize the distasteful or poisonous prey that should be avoided.

Birds are predators of [bumblebees](#). In [temperate forests](#), birds and bees use tree cavities for their nesting activities. Because bumblebees prefer cavities filled with plant materials for insulation, they may benefit from stealing freshly built nests from the birds.

Jablonski and team studied the interactions between bumblebees and cavity-nesting Oriental and Varied tits in nestboxes. They were particularly interested in whether bumblebees attempted to settle in those boxes to which the birds brought fresh nest materials, and whether their warning signals provided an advantage in taking over the nests from birds.

In the slopes of the Gwanak Mountain that surround Seoul National University Campus, the researchers observed that bumblebees were detected in up to 21 percent of freshly built nests of tits and were not detected in nestboxes without any bird nests.

The researchers conducted experiments in which they played a bumblebee buzz to the incubating birds. To do this, they built a little device through which they could play the buzzing sound inside of a tit nest. They glued a dead bumblebee onto a toothpick, and they glued the toothpick onto a flat miniature speaker. The device was then hidden inside of the nest material with the bumblebee just under the upper layer of mosses. When a bird arrived at a nestbox, the researchers played the bumblebee buzz and observed the bird's response through a small camera inside the nestbox.

The birds were distressed and often flew out of the nest. For control, they played songs of common birds. Incubating birds were less stressed by the control sound, indicating that the bumblebee buzz indeed may help the insects to take over the nest.

The authors conclude: "The bumblebees' buzz appears to help them oust birds from their freshly built nests. We have provided evidence that a warning signal, known to help deter predatory attacks on a potentially harmful prey, may also help the prey to win ecological competition with its [predators](#)."

More information: Jablonski, P.G. et al (2013). Warning signals confer advantage to prey in competition with predators: bumblebees steal nests from insectivorous birds. *Behavioral Ecology and Sociobiology*; [DOI 10.1007/s00265-013-1553-2](https://doi.org/10.1007/s00265-013-1553-2)

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