Magpie parents know a baby cuckoo when they see one

December 11 2013

Cuckoos that lay their eggs in the nest of a magpie so that their chicks can be raised by the latter better hope that their young are not raised together with other magpies. The chances of cuckoo fledglings raised in mixed broods being fed by their foster parents are much lower, according to research led by Manuel Soler of the Universidad de Granada in Spain. The findings are published in Springer's journal *Behavioral Ecology and Sociobiology*.

The post-fledging period is a critical phase for juvenile survival during which parental care is still very important. This is also true for inter-specific brood parasites, whose offspring are incubated and raised by members of other species. Very little is known however about the relationships between foster parents and fledglings of brood parasites. Sometimes, great spotted cuckoo and magpie nestlings from the same nest can fledge successfully, but most often parasitic nestlings out-compete host nestlings and only cuckoos leave the nest.

Soler and his team studied the brood parasitic great spotted cuckoo (Clamator glandarius) and its magpie (Pica pica) foster parents over the course of five breeding seasons. Aspects of cuckoo post-fledging performance, such as feeding behavior, parental defense and fledgling survival, were studied in experimental nests in which only cuckoos or both magpie and cuckoo nestlings survived until leaving the nest. Some of the fledglings were also radio tracked. The study was the first to focus on the defense behavior of adult magpies towards parasite fledglings.

They found that great spotted cuckoo fledglings are more frequently fed by magpie hosts when they are reared in nests with cuckoo-only broods, compared to those reared sharing the nest with host nestlings. This is especially true in the first three weeks after fledglings leave the nest. These are the first experimental results to show the importance of the nest situation for the performance of brood parasite fledglings.

The results support the idea that magpies are capable of discriminating cuckoo fledglings when they are allowed to compare them with their own fledglings. The researchers believe that the difference disappeared three weeks after leaving the nest because fledgling cuckoos by then tend to join cuckoo groups that are communally fed by more magpies than those involved in rearing the cuckoos in the nest.

"The presence of the host's own nestlings for comparison may be a crucial clue favoring the evolution of fledgling discrimination;" writes Soler. "Furthermore, the risk of discrimination at the fledgling stage probably is an important selection pressure driving the evolution of the arms race between brood parasites and their hosts."

More information: Soler, M. et al (2013). Great spotted cuckoo fledglings are disadvantaged by magpie host parents when reared together with magpie nestlings, *Behavioral Ecology and Sociobiology*. DOI: 10.1007/s00265-013-1648-9

Provided by Springer