

Cuckoo's copying an evolutionary curiosity

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The nest poaching shining cuckoo lay eggs in the nests of grey warblers.

(PhysOrg.com) -- A new study of brood parasitism in birds has shown that the nest-poaching New Zealand shining cuckoo's ability to mimic its grey warbler host is an evolutionary curiosity.

A doctoral study by biologist Michael Anderson, from the University's Institute of Natural Sciences at the Albany, highlights an example of a departure from co-evolution - a common explanation for to explain apparent similarities in the calls of host and parasite birds.

The migratory shining cuckoo lay eggs in the nest of grey warblers and the cuckoo chick that hatches will then push from the nest any unhatched eggs or young chicks of the grey warbler.

Having disposed of the competition, the cuckoo hatchling then mimics the sound of grey warbler chicks in order to be fed by its surrogate

parents.

Mr Anderson's study is the first in-depth New Zealand research into the behavioural dynamics of the relationship between the shining cuckoo (pipiwharauroa or *Chrysococcyx lucidus*) and the grey warbler (riroriro or *Gerygone igata*).

He used a new data analysis method for detecting co-evolution to show how cuckoo nestlings adapt their "begging" calls for food to resemble that of the warbler, which accepts the egg and raises the young as its own. What remains a mystery is how the lone cuckoo hatchling produces a grey warbler hatchling call when there are no chicks left alive to emulate. When mature, cuckoos and warblers make entirely different sounds to each other.

In a co-evolution scenario two species reciprocally evolve in response to each other in what has frequently been termed an "evolutionary arms race." Contrary to the co-evolutionary model, the shining cuckoo has developed shoskills wn its prowess as an artful mimic, over-riding its biological distance from the warbler in order to trick it into surrogate [parenthood](#), while, while the grey warbler does not appear to have altered its begging call at allresponded.

In his research - carried out mostly at Tawharanui Regional Park north of Auckland - Mr Andersonhe recorded the begging calls of nestlings from 20 native forest birds found in the North and South Islands and analysed their sound properties. He found that those species that sounded more similar to each other were typically more closely related. However, the shining cuckoo appears to have altered its begging call, in order to match its host, the grey warbler, despite not being as closely related to it as other birds are.

The grey warbler is New Zealand's smallest bird by weight, just 6.5g at

maturity, while the shining cuckoo grows to 25g, about the same as a sparrow.

Mr Anderson also studied the begging and alarm calls of the grey warbler. These form an intricate communication system between hatchlings and foraging parents.

"While approaching the nest, parents tell their chicks that it is safe to beg for food," he says. "Parents also use alarm calls to tell their chicks when to be quiet when potential predators are nearby, making it more difficult for them to find the nest."

As part of his study, he travelled to Hungary to examine the aggressive behaviour of the naked, blind common [cuckoo](#) hatchling, which evicts host great reed warbler eggs from the nest. He found that the egg-tossing invader suffers a temporary growth delay as result of the immense energy required to fulfil its conquest of the host nest. But the hatchlings eventually grow to normal size.

Mr Anderson, who graduates on April 13, has had his research widely published. It has contributed to the well-established songbird research led by Associate Professor Dianne Brunton, who heads the institute's Ecology and Conservation group.

Provided by Massey University

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