



A FACE ONLY A FATHER COULD LOVE

Do male Pheasant Coucals raise their own kids because no-one else will take on the job?

A Stuart Leslie Bird Research Award winner investigates.

BY GOLO MAURER

PHEASANT COUCALS ARE different. Unlike other Australian cuckoos, they are not brood parasites. Rather than trick another bird species into raising their offspring, they care for their young themselves. It is a myth, however, that coucals show parental care only because their nestlings are so ugly that they cannot find a host species willing to rear them.

Granted, coucal chicks do not look like your average fluffy baby bird. They are almost naked, with wispy, white down on black skin, and could challenge Hans Christian Andersen's ugly duckling for the wooden spoon in the bird-baby beauty-contest. But that does not explain why coucals cannot convince other species to raise their chicks.

While cuckoo hosts are meticulous about egg patterns and eject any egg that differs ever so little from their own, they are surprisingly indiscriminate when it comes to nestlings. The foster parents watch unmoved as the freshly hatched cuckoo chick pushes their own eggs and young out of the nest. They do not seem disturbed by the fact that their adopted youngster produces an entire brood's worth of begging calls. They stuff their bottomless baby with grubs and critters until it shuts up and grants them a little rest, during which time they

probably indulge in parental pride, a disease even humans are not immune to. What parent would not be chuffed about raising a splendid specimen that out-grows the other kids (and its 'parents') by two or threefold? Still, as a daddy bird I would probably feel a wee bit uncomfortable if I could fit into the gape of my young.

So what, if not the nestling coucal's questionable beauty, drives coucals to the daily grind of parental care? Actually, this is the wrong question to ask. Amongst Australian cuckoo species, the Pheasant Coucal, with its parental care, seems the odd one out, but a look further afield changes the picture dramatically. Of the 136 cuckoo species in the world only 53 are parasitic, yet these species receive almost all the attention, and with good reason. The parasitic breeding system of the cuckoos has intrigued mankind for aeons. In 500 BC Aristophanes wrote a comedy about 'cloud-cuckoo land'; a city in the sky whose inhabitants live a life without any responsibilities, very much the life of a parasitic cuckoo. Two and a half thousand years later we are beginning to see through the tricks and deceptions that cuckoos use to turn clever little host birds into mindless feeding machines. However, one important step in our understanding

of brood-parasitism still needed to be taken: the comparison of parasitic and non-parasitic cuckoos.

After a childhood of cuckoo clocks and cake in the Black Forest I felt well prepared to take on the task of studying a cuckoo that cares for its young. How did brood parasitism start? 'Wouldn't it be nice', the first ever parasitic female cuckoo might have thought before she dumped her egg on an unsuspecting host, 'if I could spend my days chasing hairy caterpillars rather than sitting on raw eggs for weeks on end?' Her logic might have been impeccable since it is hard to think of a more boring 'activity' than incubation, yet this is probably not how it happened.

My comparison of the world's cuckoos indicates that the ancestor of all present-day cuckoos, including the parasitic cuckoos, had predominantly male incubation. So, when the ancestral female parasitic cuckoos decided to shed their responsibilities, they first handed them to their mates. In most non-parasitic cuckoo species today the male still does the lion's share of incubation. Male Pheasant Coucals have even taken their parental duties a step further. Not only do they incubate alone but they also but they also make about 80 per cent of the chick-feeding visits to the nest! Such dedication warrants a closer look at what might be special about the object of this loving care.

With their spiky white 'hair' sprouting from glossy black skin, young Pheasant Coucals look almost prehistoric. Indeed, the hairlike feathers of young coucals resemble the feathers recently discovered on fossil dinosaurs. Why would nestling coucals grow such an out-dated form of nestling down? The structure of the feathers rules out that they serve to keep the chick warm, which is the main function of typical down. In the Pheasant Coucal's tropical breeding grounds, where the temperature at night drops to a balmy 30°C, insulating down would seem dispensable. In fact, downy feathers could actually be detrimental if they soak up the monsoonal rains and keep the nestlings wet and cold. What else could the coucal down be good for?

As unlikely as it seems at first glance, the striking combination of white feathers on pitch black skin could actually act as a camouflage. When a predator

approaches the nest coucal parents often give alarm calls to make the young jump out of the nest and huddle together next to a nearby log or grass tussock. Suddenly the tasty morsels, so conspicuous in the nest, vanish. Like the stripes of the Zebra, the black and white pattern of nestling coucals dissolves their shape and they blend perfectly with the blades of dry grass scattered over the dark soil of the floodplains. Surprisingly, young coucals begin to use this vanishing trick at the tender age of 6 days. Perhaps there are clues to the evolution of cuckoo parasitism in this rapid development of young coucals.

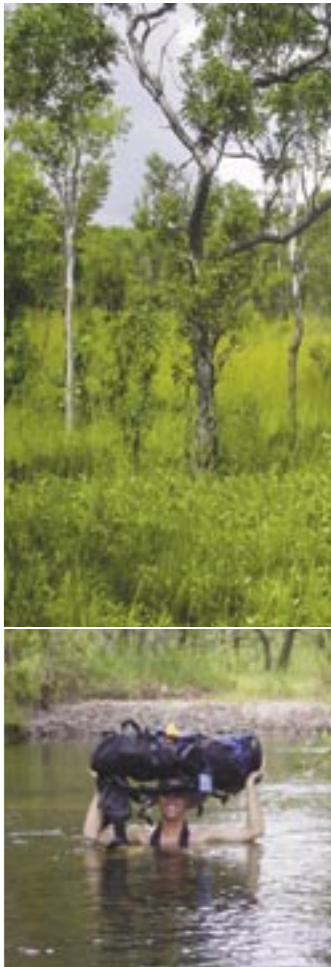
In fact, an express development is one of the most astonishing features of young cuckoos. Eggs of parasitic cuckoos develop at such high speed that they hatch with or before their host's eggs, even though they have been laid after the first host eggs. Once out of the egg the cuckoo nestling does not take much longer to fledge than would the young of its hosts. The Australian Horsefield's Bronze-Cuckoo, for instance, fledges after 16 days; by comparison, the young of its host species, the Superb Fairy-wren, take 13 days and only reach half the nestling cuckoo's weight. This fast development and growth is often explained as having evolved to enable young cuckoos to dispose of their step-siblings quickly. But did it?

From zero to fledging Pheasant Coucals beat most other cuckoo nestlings hands down. Ten to 12 days is all the time young coucals need in the nest. This is an amazing feat given that many other birds in the same weight class (200–300 g) as Pheasant Coucals allow their young a leisurely 20–30 days before they give them the boot. And even the chicks of featherweights like the fairy-wrens (c. 10 g) need at least 2 days longer than coucals to fledge. So, it seems that fast development is not the result of brood parasitism, instead it may have assisted the evolution of the behaviour.

Admittedly, when young coucals leave the nest the parents still look after them and only their legs are really up to speed, while their wings are barely half grown. This very uneven growth pattern means that fledgling coucals run like the wind and fly like a brick. But then adult coucals are not exactly master pilots themselves as becomes painfully obvious when you count the number of dead coucals along northern Australian roads.

There is another precocious trick that young coucals perform. At just 4 days of age they can produce a special, sticky, foul-smelling poo, which they eject into the face of anyone who wants to eat or simply study them. So, it seems the investigation of why young coucals develop this fast is shaping up to be a long and sticky one.

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Top: Pheasant Coucals are distributed from Western Australia's Pilbara and Kimberley, across the far north, and down the east coast to about Ulladulla, New South Wales.

Above: The rigors of the field when your study species breeds in the wet season: the author fords a river at Litchfield National Park, Northern Territory.

Photos by Mark Süssa

Below left: Despite a shaky start on the road to beauty, Pheasant Coucals eventually grow into strikingly handsome birds, especially when they don breeding plumage.

Photo by Leon Keasey and Greg Holland, www.birdphotos.com.au

Who could refuse them?

Two chicks show their alluring gapes: red, black-edged tongues contrast nicely with black skin and white down. Photo by Golo Maurer

A trio of punk youngsters. Photo by Golo Maurer

