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AVIAN NEST PREDATION: DO BIRDS GET AWAY WITH MURDER?

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The breeding success of southern African birds are highly variable but generally low (Maclean 1983). In a sample of 49 Afrotropical bird species, the average breeding success was 37.5% (Maclean 1983). Breeding success may however show inter-annual and seasonal variation as well as variation in different stages of the nesting cycle. Although there are many possible factors which may affect breeding success, predation is often invoked as the main reason for the poor breeding success of southern African birds. Actual predation is rarely observed, which has led researchers to use indirect methods to assign a culprit to a particular nest failure. The most common method is to use the state of the nest as an indication of the identity of the potential predator. For example, if the nest is severely damaged, the cause of nest failure is usually assigned to small mammalian predators, e.g. monkeys, rodents, genets and mongooses. On the other hand, if the nest is found intact, nest failure is usually ascribed to a snake. Birds, despite being potentially important nest predators, are relatively rarely assigned as nest predators.

Over many years of field observations on the breeding biology of birds, I have observed several incidences of predation on eggs and nestlings by birds. Some of these predation events caused sufficient damage to the nest to mistakenly categorize it as damage caused by a mammalian predator. The extent of damage to the nest varies according to the avian predator and whether eggs or nestlings are predated. I will briefly describe the predation events witnessed and the extent of damage to the nest to demonstrate that great care should be taken to assign predation to a particular taxonomic group.

Fiscal Shrike *Lanius collaris*

i) A female Fiscal Shrike was observed taking a two-day old Chestnut-vented Titbabbler *Parisoma subcaeruleum* nestling from its nest, with minimal damage to the nest. A second nestling was left untouched but was absent on day 6 of the nestling period. Even after the second predation event the nest remained intact. (Polokwane Nature Reserve, December 2007).
ii) A male Fiscal Shrike killed a two-day old Sabota Lark *Calendulauda sabota* nestling with no visible damage to the nest. Two days later, the same Fiscal Shrike killed the second nestling in this nest, also without causing damage to the nest (Fig 1). (Polokwane Nature Reserve, November 2011).

Figure 1 – A male Fiscal Shrike predating a two-day old Sabota Lark nestling

Black-crowned Tchagra *Tchagra senegalus*
The bird attempted predation on a clutch of two Kalahari Scrub-robin *Cercotrichas paena* nestlings. The nestlings were well grown and responded to the presence of the Tchagra by gaping. Whether it was an instinctive begging response to a bird at the nest entrance, or an anti-predator strategy is unknown. However, the Tchagra appeared startled and tried a few different angles of attack during which it perched on the nest rim eventually removing one of the nestlings and killing it. Minor damage was caused to the nest structure. Incidentally, this is the first record of a Black-crowned Tchagra including birds in its diet. (Polokwane Nature Reserve, November 2006).

Burchell's Coucal *Centropus burchelli*
i) An adult bird was seen taking two eggs of a Laughing Dove *Streptopelia senegalensis* from a nest and dropping them on the ground below before eating the egg contents. No damage was caused to the nest. (Polokwane suburbs, September 2005).
ii) On another occasion a five-day old Karoo Thrush *Turdus smithi* nestling was taken from its nest. Minor damage was caused to the rim of the nest. (Polokwane suburbs, February 2010).

Red-backed Shrike *Lanius collurio*
An adult bird was seen taking a seven-day old Yellow-bellied Eromomela *Eromomela icteropygialis* nestling from its nest. Although the nestling crouched in the nest, the shrike managed to get a hold of it and dragged it from the nest. However, the nestling clutched its feet on the nest lining and as it was dragged from the nest, a large amount of the nest lining was pulled along with it. This resulted in extensive damage to the nest. (Polokwane Nature Reserve, November 2008).

Grey-headed Bush-shrike *Malaconotus blanchoti*
i) A Grey-headed Bush-shrike attempted to predate the eggs of an incubating Red-eyed Dove *Streptopelia semitorquata*. It first tried to force the dove to leave the nest by mobbing it from various angles. The incubating dove rebuffed these attempts by flicking its wings at the bush-shrike and making soft noises. When this did not work, the bush-shrike attempted to reach the eggs from below the nest by striking at the nest from below and attempting to break it apart. Although the bird did not succeed in reaching the eggs, it caused considerable damage to the already flimsy nest. (Polokwane suburbs, February 2011).
ii) A bush-shrike was seen killing a nearly fully-grown Red-eyed Dove nestling. It attempted to feign the predator off by inflating its body and striking with its wings, without success. The Grey-headed Bush-shrike killed it in the nest after a short scuffle, which resulted in the almost complete annihilation of the nest. (Polokwane suburbs, March 2008).

Southern Yellow-billed Hornbill *Tockus leucomelas*
A bird was seen extracting Scaly-feathered Finch *Sporopipes squamifrons* nestlings one by one from a nest by simply pecking right through the roof of the nest. This also resulted in extensive damage to the nest. (Blouberg Nature Reserve, March 2007).

African Harrier-hawk *Polyboroides typus*
One bird took Red-headed Finch *Amadina erythrocephala* nestlings from the nest of a Spectacled Weaver *Ploceus ocularis*, resulting in complete destruction of the nest (Polokwane suburbs, March 2010).

Pied Crow *Corvus albus*
A bird was seen to attack and kill a 2-3 day old Blacksmith Lapwing *Vanellus armatus* chick. Although there was no nest involved in this predation event, I included it to show that Pied Crows can also affect breeding success. (Al3 Farm, De Loskop near Mogwadi, March 2011).

Very young nestlings are easy prey for avian predators as they are too weak to offer much resistance. Larger nestlings, depending on the species, may defend themselves by various anti-predator defences such as hissing, gaping and striking at the predator. Larger

nestlings of open, cup-nesting species often crouch and tuck their heads into the nest structure, forming an effective shield which makes it very difficult to get a hold of an individual. This may require a predator to “dig” or “scratch” to dislodge the nestlings, resulting in damage or destruction to the nest. Many of the smaller avian predators cannot dig or scratch nestlings from the nest, but they perch on the nest cup lip and may try different angles of attack which may cause damage to the nest. Often, the biggest damage is caused when the predator attempts to pull large nestlings from the nest. Large nestlings have well developed feet and they often grasp or clutch the nest lining in their feet as they are pulled, taking parts of the nest lining and sometimes the nest structure along. I should add that I have also observed a Spotted Skaapsteker *Psammophylax rhombeatus* taking a Desert Cisticola *Cisticola aridula* nestling from the nest. As the nestling was being swallowed, its feet clutched the lining which resulted in a fair amount of damage to the nest, again enough damage to apportion the blame to a mammalian predator. Furthermore, using animal tracks or hair at a damaged predated nest as evidence of mammalian predation may bias results. For example, the tracks or hair may not necessarily belong to the initial nest predator and may have been left after the predation event by a mammal during usual foraging exploration or scavenging on the remains of the initial predation event. Thus, from the abovementioned examples it should be evident that field biologists must be cautious to attribute predation to a particular taxonomic group without direct evidence, e.g. trail camera images, video evidence etc.

In conclusion,

i) the events during a predation event will determine the extent of damage to the nest,
ii) there is not necessarily a link between the degree of damage to the nest and a particular taxonomic group,
iii) birds may be important, but underestimated, nest predators in certain environments, and
iv) field biologists should refrain from attributing breeding failure to a particular predator without direct evidence or actually observing the predation event. The latter point is particularly important when formulating management plans for species of conservation concern. Incorrect identification of the causes of breeding failure or including measures to control the wrong nest predator in management plans, will seriously impede any conservation efforts.

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References

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