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artful DODGERS

The social dynamics of need and greed

Despite being able to catch prey on the wing in masterful displays of aerobatics, Fork-tailed Drongos resort to theft to capture the larger prey that burrow underground to escape the scorching Kalahari sun. To do so, they strike up a remarkably dynamic yet volatile friendship with social groups of ground-foraging Southern Pied Babblers. **MANDY RIDLEY** and **NICHOLA RAIHANI** examine just who stands to gain from this unlikely association.



NICHOLA RAIHANI

Poised at the edge of its perch, the Fork-tailed Drongo *Dicrurus adsimilis* keenly watches the foraging activities of the group of Southern Pied Babblers *Turdoides bicolor* on the ground below, waiting for an opportunity to steal a large, juicy prey item. Choosing the right time to attack is of crucial importance because babblers are shrewd, and opportunities to steal from them are few and far between.

Fork-tailed Drongos are solitary foragers, and often catch their prey on the wing in fantastic displays of twisting aerobatics, but such prey items are frequently small, and uncommon during cold or windy periods. Also, in the Kalahari, many desert-dwelling animals make their homes underground, allowing them to escape the blistering heat of summer and the freezing winter

winds, but making them inaccessible to drongos. At such times of scarcity, the drongos follow and closely watch the activities of those animals that dig into the ground to find their prey. The drongos' best targets are social species that forage together in large groups as, collectively, these hunters find more prey than do solitary hunters.

One such species is the Southern Pied Babbler. Similar in size to drongos, this group-living bird regularly digs up items that the drongos cannot catch for themselves. The drongos then commonly resort to theft, and attempt to pilfer large food items from foraging babbler groups. But these robberies potentially come at a cost: unless the babblers are able to derive some benefit from the drongos' presence, they do not tolerate them and aggressively drive them away.

Above Babblers carrying large prey items back to the nest to feed their young are particularly vulnerable to drongo attacks, because food is exposed for a significantly longer period than normal.

Opposite The watchful thief: when following pied babbler groups, drongos often perch directly above foraging individuals and keep a close eye out for opportunities to steal food items.

Southern Pied Babblers live in social groups ranging in size from three to 16 individuals, and spend most of their time foraging on the ground. While primarily surface feeders, they do occasionally dig up large prey items, such as scorpions, sun spiders and burrowing skinks. However, while digging in the ground, individuals cannot ▷



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ANDY RADFORD

Above Pied babblers are very aggressive when it comes to defending their food, and their strong legs are often used in grappling attacks that can occasionally cause injury. Babblers frequently use this type of attack to deter thieving drongos.

Above, right With the drongo watching out for predators, all group members can get down to the serious business of foraging.

Opposite Juvenile pied babblers have a prolonged period of post-fledging development, during which time they continue to rely on adults to provide most of their food and predator vigilance. This makes them an ideal target for drongos, who regularly focus their attacks on these hapless youngsters.

simultaneously remain alert for predators. As a social solution to this, while the rest of the group forages, there is always one babbler that perches above the group and remains 'on guard' for any potential predator attack. When a predator is sighted, the sentry gives an alarm call, which causes the rest of the group to abandon their foraging and flee for cover.

Drongos establish a 'friendship' with babbler groups by becoming part of this guarding system. Individual drongos will often perch above a babbler group and remain vigilant for predators, leaving the babblers free to forage without fear of attack. Just like the babbler sentries, guarding drongos give alarm calls whenever a predator is sighted, allowing the babblers to escape to safety. They also demonstrate their worth through fearless and formidable attacks on potential marauders, which can be birds as large as eagles, as well as terrestrial predators such as yellow mongoose *Cynictis penicillata* and slender mongoose *Galerella sanguinea*.

By proving themselves to be reliable friends against common enemies, drongos are tolerated by babbler groups. However, once the friendship has been established, the treachery begins: because babblers pay close attention to drongo alarm calls, drongos are able to manipulate this to their advantage. When a guarding drongo sees a babbler with a large, juicy prey item, it sometimes gives an alarm call, even though no predator is present. The babbler then

flees in response, allowing the cheating drongo to swoop down and purloin the abandoned food item. If the babbler fails to relinquish its meal and attempts to escape the thief's attentions, the aerobic skills of the drongo come to the fore. It may dive on and grapple with the babbler, and the two may even wrestle in mid-air in a violent tug-of-war. The drongo usually prevails in such encounters, but if the babbler manages to hold onto its prey until the pair hit the ground, the rest of its group may come to its aid and overpower the thief.

Dishonesty is a dangerous game. If drongos cheat too many times, the babblers stop trusting their alarm calls, with the result that soon no food items are abandoned for cheating drongos to steal. Alternatively, thieving drongos may be chased away from babbler groups, thus negating the effort they invested in honest alarm-calling. So, after each successful theft, drongos must devote time to re-establish themselves as reliable guards or else leave the group and try their luck elsewhere. Because drongos are strongly territorial, the number of other babbler groups available for them to target is limited. This makes it even more crucial for drongos to be sufficiently honest in their alarm-calling to continue to be accepted by all of the babbler groups within their territory.

The full extent of the drongos' cunning is revealed in the way in which they target specific individuals within a babbler group. Since opportunities to steal

food are few and far between, they need to give themselves the greatest chance of success during each attempt. To do this, drongos focus their attention on the most vulnerable individuals in a babbler group: the youngsters. In babbler society, juveniles face a steep learning curve. Not only do they need to assimilate a complex range of group vocalisations, but they also need to discover how to find and handle large, potentially dangerous prey items, such as scorpions.

Babbler alarm calls vary in several ways and each provides specific information to the group, such as the type of predator sighted (aerial or terrestrial) and the urgency of the response required. Before they have learnt to distinguish the subtle differences between the calls, youngsters use the safe default of 'respond to all alarm calls', and when they hear one, they are guaranteed to drop their food item and flee. So, even though juveniles are less efficient foragers than adults and are less likely to catch large prey items, they are the targets for most of the drongos' attacks. Older babblers, by comparison, often look up and check for themselves before responding to a drongo's predator alarm call and, by doing so, prove far tougher targets.

Not only are youngsters more agitated than adults, they are also less proficient at handling and breaking apart large prey, making them doubly attractive targets. While adults can efficiently remove claws, pincers, stings, barbs and all other manner of prey armour, youngsters may grapple with their catch for more than a

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quarter of an hour, giving drongos plenty of time to notice the food item, even in large babbler groups, and to plan the best strategy for a successful attack.

But drongos are not the only cunning participants in this dynamic relationship. Babblers seem acutely aware of their 'need' for the sentry duties that drongos provide. In large babbler groups, which have many members available to share guarding duties, the extra vigilance that drongos provide is surplus to requirements. These large groups therefore usually attack or chase away any drongo that approaches and attempts to follow the group, and in so doing, babblers ensure that the food items they catch will not be stolen. Small groups, however, face more difficulties dividing their time between raising young and being vigilant for predators, simply because there are so few adults to share these duties. They therefore stand to gain a lot more from the anti-predator vigilance that drongos offer and they are willing to tolerate some food losses in return for the guarding services rendered.

The relationship between these two species is so dynamic that the addition

or loss of a single group member can alter the way that a babbler group responds to drongos. Following the loss of an individual, the remaining babblers do not increase their guarding workload, but rather rely more on the vigilance provided by drongos. This reliance is reflected in a noticeable drop in aggression towards drongos. By increasing their dependence on drongos, even though they face a higher risk of having their food stolen, they do not have to spend more time guarding to cover the contribution of the missing group member. This allows them to devote more time to raising young, which is of crucial importance when there is one less adult to help provision the brood.

Thus, the 'friendship' between these two species hangs on a knife-edge of honesty on the one hand and need on the other. If drongos are too dishonest, they will lose opportunities to steal food, but if babblers are too intolerant, they will lose valuable assistance in predator detection. As long as both sides continue to receive some benefit from the relationship, the friendship continues, although both parties are constantly on the lookout to gain an advantage in this game whose cards are predation and piracy. □