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Grey Butcherbird *Cracticus torquatus* aggression and a discontinued predation event by a Black-shouldered Kite *Elanus axillaris*

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A series of attacks on two raptor species by Grey Butcherbirds, *Cracticus torquatus* at Warnbro Sound and Halls Head, Western Australia is documented. In a further observation in the same area, a Grey Butcherbird was dropped, still alive and functioning, after being captured by a Black-shouldered Kite, *Elanus axillaris*, an event interpreted as discontinued predation. The aggression by Grey Butcherbirds stimulated the raptors to move away and is assumed to be territorial defence; it may have predisposed the predatory Black-shouldered Kite to discard the Grey Butcherbird as potential prey.

Keywords: Grey Butcherbird; Black-shouldered Kite; discontinued predation; aggression; territorial defence

INTRODUCTION

The Grey Butcherbird, *Cracticus torquatus* is a 30 cm-long passerine bird with a mass of 90 g, whereas the Black-shouldered Kite, *Elanus axillaris*, a raptor, is 36 cm long and weighs 293 g (Slater *et al.* 1991; Dunning 2008). Both have similar diets consisting of invertebrates and small vertebrates, such as the House Mouse *Mus musculus* (Marchant and Higgins 1993; Higgins *et al.* 2006). The kite's diet comprises small rodents, especially mice (Engel and Rose 1997; Debus *et al.* 2006; Tsang *et al.* 2017), although it occasionally takes small birds (Debus 2012) weighing 10–135 g (Tsang *et al.* 2017). Grey Butcherbirds also catch live prey, including birds as large as the Common Blackbird, *Turdus merula* (149 g), Spotted Dove, *Spilopelia chinensis* (135–179 g) and Painted Button-quail, *Turnix varius* (85–128 g) (Pizzey and Knight 1997; Hobbs 1981). They are known nest-predators (Fulton 2008, 2019, 2020a) and have also been reported attacking stuffed and live Southern Boobooks, *Ninox boobook* and stuffed Barn Owls, *Tyto alba* (Jurisevic and Sanderson 1994). They are also known to attack humans, with injury rates being higher than those inflicted by Australian Magpies, *Cracticus tibicen* (Jones 2002). The Grey Butcherbird's breeding season in south-west Western Australia generally extends from August to November (Johnstone and Storr 2005).

Here I report a single, discontinued predatory event involving a Black-shouldered Kite capturing and then dropping a Grey Butcherbird. Such a predatory attempt involving these two species has rarely been reported. Observations of aggression by Grey Butcherbirds towards Black-shouldered Kites and Eastern Ospreys, *Pandion haliaetus cristatus* in the same and nearby areas are also reported. These observations are consistent with the suggestion that experience of such aggression might have predisposed the predatory kite to reject the butcherbird as potential prey and discard it.

METHODS

Study sites

The observations were made during a larger study of sea, beach and dune birds at Warnbro Sound and Halls Head, in south-western Australia. Warnbro Sound is a natural embayment, which forms part of Shoalwater Islands Marine Park. The Warnbro Sound site (32°20′18″S, 115°43′33″E) included the 5.5 km of beach located centrally in the embayment. The beach is narrow, extending ~25 m from foredune to shoreline. The dune system has a narrow and vegetated foreshore reserve ~100 m wide. The Hall's Head site (32°32′54″S, 115°40′52″E) includes the beaches and dunes formed from the Quindalup Dune sands and Tamala Limestone shelves and escarpments between Mandurah Estuary and the Dawesville Cut (Department of Environment and Conservation 2007). It also has a narrow and vegetated foreshore reserve ~100 m wide. Both sites abut residential housing, although the southern end of the Warnbro Sound site is backed by a golf course that retains some native vegetation.

Observations

Observations were made by naked eye, aided by field binoculars as required, while I traversed the dune system behind the beach on foot. Transects were walked in the late afternoon, finishing at sunset; most were 4 km long, 2 km along the beach and 2 km on a return journey through the dunes. The observations documented here were recorded during 1,168 surveys undertaken in all weather conditions from 2006 to 2016; 108 of these surveys were conducted at the Halls Head site. I report the scale of this surveying here simply because it emphasises the comparatively low frequency at which aggressive interactions between butcherbirds and kites were observed, probably because butcherbirds were detected only infrequently during surveying. Further details of the surveying methods are given in Fulton (2010a, b, 2014, 2015, 2016, 2020b, c). Avian masses were sourced from Johnstone and Storr (1998, 2005).

Table 1

Observations of aggression by Grey Butcherbirds (BB) towards target immature Eastern Ospreys (Osp) and adult Black-shouldered Kites (Kite) at Warnbro Sound (WS) and Halls Head (HH), Western Australia. The duration, success (in terms of whether the host responded to the attack by deviating in flight) and additional comments on the interaction are given. Where an individual bird was known or its identity could reasonably be assumed it is numbered. (e.g. B1, B2 etc. for different butcherbirds). Dates are given as day/month/year. The number of seconds in aggression does not include approaches to, or departures from an event, only the actual duration of the aggression. Success (yes/no) relates to causing a host to move away through aggression; for example, if the host deviated from its flight path, the aggression was deemed successful.

No.	Date	Site	Target	Duration (sec.)	Success	Comments
Observations of agonistic behaviour						
1	6/11/12	WS	Kite1	4	No	BB1 did not move the hovering Kite but immediately tried again.
2	6/11/12	WS	Kite1	8	Yes	BB1 moved Kite but only 20 m away.
3	27/2/14	WS	Osp	6	Yes	BB2 flew from perch straight to immature Osp, which changed direction, moving away from BB2.
4	27/2/14	WS	Osp	6	Yes	As for No. 3, except BB3 was the aggressor.
5	1/4/14	WS	Kite2	4	No	BB4 attacked Kite2 twice, for 2 seconds each time, without moving it. BB4 holds a year-round territory here with other BBs.
6	1/4/14	WS	Kite2	3	Yes	BB4 attacked Kite2 again, successfully moving it away.
7	27/3/15	HH	Kite3	6	Yes	Kite3 was hovering above dune vegetation when BB5 flew towards it, causing it to move ~100 m away. BB5 came within only 10 m of Kite3, then returned to its streetlight perch.
8	24/8/15	HH	BB5	6 (21 if including the Black-shouldered Kite's stepwise drop.)	N/A	Kite2 hovered 40 m above BB5 before dropping down in three stages (first to ~25 m and hovering <10 sec. before dropping to 10 m above ground level and hovering again for *c*. 5 sec, then finally dropping much faster, feet first, into the heath. Kite2 then rose from heath and began to fly away and after 6 sec. dropped its prey (BB5), which flew away. BB5's wings became visible in flight, indicating that its wings may not have been held by Kite2. Kite2 made no startled moves and no attempt to recatch its prey. It then flew off to south and started searching and hovering again~200 m from where it had caught BB5. BB5 flew south-east to a television antenna~50 m away, where it perched for 60 sec., before dropping down to a suburban backyard and out of sight. These observations were from 20 m north-east of capture position, in good light and without obstruction. BB5 did not act as if injured. It is possible that Kite2 released BB5 on realising the type of prey it had caught.
Additional observations on the surviving Grey Butcherbird						
9	25/8/15	HH	BB5		N/A	BB5 was still alive the next day. During 33 transects between 4 February and 27 August 2015, I saw only one BB in this location, presumably BB5.
10	22/10/15	HH	BB5		N/A	BB5 was still in the same place, feeding in the heath ~2–3 m from where it was picked up by Kite2 in August.

RESULTS AND DISCUSSION

Eight observations of agonistic behaviour between Grey Butcherbirds and Black-shouldered Kites were recorded during surveys (Table 1). In general, these actions appeared to be overtly combative and not involving ritualised aggression. Grey Butcherbirds' aggression was successful (caused the target to move away) in five of seven (71%) attacks against raptors. Furthermore, the unsuccessful attacks (1 and 5) were both followed *immediately* by a second attack (observations 2 and 6, Table 1) which were successful in causing the target to move away. Thus, if attacks 1 and 2, and 5 and 6 are considered as single assaults the proportion of successful attacks by butcherbirds would be 100%. This success rate indicates that the raptors were sufficiently intimidated by the butcherbirds' aggression to alter their flight paths.

A single observation (No. 8, Table 1) of a Black-shouldered Kite's discontinued predation attempt on a Grey Butcherbird, in which it captured the butcherbird but then dropped it, highlights the unsurprising fact that some discrimination in prey selection is probably shown by kites. Perhaps this and other butcherbirds' aggressiveness towards the kite had forewarned the predator of the potential danger involved in continuing to handle the captured prey, and/or maybe there were enough alternative, less aggressive prey at this site to permit the kite to be discriminating in prey selection. The Black-shouldered Kite has the highest pedal flexibility measurements and greatest angle of digit divarication of raptors tested by Tsang (2012) and Tsang and McDonald (2019), indicating that it can grasp and handle larger prey than other similarly-sized raptors. It has been reported capturing birds up to ~135 g in mass (e.g. Crimson Rosella, *Platycercus elegans*) (Johnstone and Storr 1998; Tsang *et al.* 2017). The Grey Butcherbird weighs ~90 g, which is well within the potential prey size range that the kite can handle, so it seems unlikely that the butcherbird was discarded because it was simply too big to handle. This reinforces the suggestion above that the kite recognised the butcherbird as potentially dangerous, aggressive prey from previous encounters with the

species and consequently dropped it. However, if this was the case it remains somewhat puzzling that the decision to abort the predation attempt was not made prior to capture. It seems likely that the (unmarked) Grey Butcherbird described in observation 8 (Table 1) was either uninjured or recovered from any injuries sustained in being captured because a butcherbird was sighted in later surveys in exactly the same place as that at which the discontinued predation event occurred (observations 9 and 10, Table 1).

Despite this study being limited by the small number of observations, two phenomena were apparent. Firstly, Grey Butcherbirds attacked raptors, including the Black-shouldered Kite. Secondly, five of seven such attacks occurred outside of the breeding season, which is consistent with the observations of other authors who have reported year-round territorial defence by this species (e.g. Serventy and Whittell 1976). In observation 5, I also noted that Butcherbird 4 appeared to hold a territory year-round, as did other butcherbirds in the local area. Indeed, Grey Butcherbirds appear to maintain their territories for long periods and particular territorial sites can be held by a succession of individuals e.g. Fulton (2008, based on pers. comm. by Stephen Davies) reported that they held one territorial site at Ejah, Western Australia for 45 years. Clearly, territory-holding is important in this species, which may help to explain why it is aggressive throughout the year. It is also likely that aggressive behaviour by butcherbirds, perhaps experienced year-round by the kite that discontinued the predation attempt, might have predisposed the raptor to discard the butcherbird as potential prey.

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