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Ornithological Observations accepts papers containing faunistic information about birds. This includes descriptions of distribution, behaviour, breeding, foraging, food, movement, measurements, habitat and plumage. It will also consider for publication a variety of other interesting or relevant ornithological material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, and any other interesting or relevant material.

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HOW MANY TORTOISES DO A PAIR OF PIED CROWS *CORVUS ALBA* NEED TO KILL TO FEED THEIR CHICKS?

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In a position statement BirdLife South Africa (BLSA) has highlighted the potential impact of the increasing abundance of Pied Crows *Corvus albus* on South African biodiversity (BLSA 2012). This potentially negative impact was further underlined in an editorial by the Chief Executive Office (CEO) of BLSA where he emphasised the need for research into the increasing abundance of Pied Crows and the possible impacts of this increase before any action is taken (Anderson 2013). The CEO wrote: "It needs to be demonstrated that crows are causing significant damage to livestock and pose a threat to biodiversity, including raptors and tortoises." The Chairperson of the Cape Bird Club's Conservation Committee has supported the BLSA position. He has described how the Committee has resisted requests to take action against these "nuisance birds" in the city. He has further emphasised the need for "solid evidence" and speculated that this may be a long time in coming (Whitelaw 2013). The recommendations made by BLSA were rational based on available information when they were tabled. This paper presents proof of heavy predation on tortoises by a pair of Pied Crows at a single nest site in order to rear successive broods of chicks. The data collected by the observers should be added to other data on this same phenomenon.



Fig 1 - Four Pied Crow chicks in the nest on the windmill in the Ceres Karoo
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Pied Crow predation on tortoises in the Karoo

During 2012 a pair of Pied Crows nested on a windmill in the Ceres Karoo (S 33°04.607' E 19°53.197') and reared four chicks (Fig 1). An accumulation of carapaces of small tortoises was noticed beneath the nest – eventually 160 carapaces or parts thereof were counted. These results have been reported online (Lambrechts 2012).

The following year four more chicks fledged from the same nest to join the rapidly increasing crow population. Alerted by the slaughter of the previous year, a thorough collection of carapaces established that at least 315 small tortoises had been killed to feed the chicks and parents (Figs 2 and 3).



Fig 2 - The carapaces of 315 small tortoises killed by crows to feed four chicks in 2013 ©Nollie Lambrechts

This rate of predation is almost certainly not sustainable and any defenceless species will be equally at risk, including the eggs, nestlings and fledglings of many birds. These, as well as dwarf chameleons, geckos, skinks and other small prey may be digested entirely leaving no trace of predation. The Geometric Tortoise

Psammobates geometricus is locally extinct in parts of its original range and the remaining population is endangered (McLachlan 1978; Baard 1993). Heavy predation on tortoises by the White-necked Raven *Corvus albicollis* (formerly called Cape Raven) has also been described (Uys 1966).

Ecology of Pied Crows

The ecological role of Pied Crows has been adapting over time to a range of environmental changes that relate mainly to human population pressure, which is often associated with degradation of habitat and loss of biodiversity, such as replacement of species – rich renosterveld by monocultures of wheat, potatoes or grapes, and human settlements. Using a windmill in the Karoo as a safe haven for nesting and a vantage point is an example of opportunistic adaptation in an ongoing natural experiment. Both the first and second southern African bird atlas projects (SABAP1 and SABAP2) have monitored this adaptive process in South Africa, Lesotho and Swaziland. Pied Crows have been observed in 1 307 quarter degree grid cells (QDGC) with four or more checklists in both atlas projects. The number of QDGCs with increased reporting rates in SABAP2 is close to double those with decreases (LG Underhill, *in litt*). A parallel study reported a significant increase in Pied Crow abundance across South Africa that is greatest in urban areas and shrubland (Madden 2013).

Observations such as the examples that follow are a source of powerful ecological information that must be recognised. In the Calvinia district where the human population density is low, Pied Crows often converge in loose flocks of 50 to 100. The three indigenous corvid species occur in the area but Pied Crows have increased to outnumber the other two species by 30:1 or more (F van



Fig 3 - The range in size of tortoises killed by Pied Crows to feed their chicks ©Nollie Lambrechts

der Merwe, *in litt*). Rob Martin and Jessie Walton have compiled a bird list for the 100 000 ha Kogelberg Biosphere Reserve (pers. comm.). It has been updated over several years. The corvid population originally consisted predominantly of Cape (Black) Crows but the ratio has been reversed. Experienced birders frequently observe excessive harassment of raptors by Pied Crows (Anon 2013). Persistent reports that Pied Crows mutilate ewes and lambs need to be investigated thoroughly.

Discussion

The hard evidence of heavy predation on tortoises in order to feed successive broods of four chicks each is unlikely to be unique. A comprehensive survey to establish the extent to which this degree of

damage may be replicated needs to be undertaken urgently.

If it is confirmed that similar situations are widespread there is a responsibility to do whatever is practical, at least via pilot projects. Key components of research and some inevitable obstacles have been summarised (Anderson 2013). Clarity on action, responsibilities and accountability is needed.

That corvids are intelligent and adaptable does not mean they should be allowed to proliferate to the extent that they contribute to declines of some reptiles and other birds.

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