

Short Note

Pygmy Falcon predation of nestlings of their obligate host, the Sociable Weaver

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The Pygmy Falcon *Polihierax semitorquatus* is a small, shrike-like raptor which does not build its own nest. In southern Africa it is dependent on the communal nest masses of Sociable Weavers *Philetairus socius* (or occasionally other species) to breed and roost (Maclean 1973, Steyn 1982). This dependence is reflected in the falcon's distribution and habitat affinities, which largely coincide with those of the Sociable Weaver (Brown 1989). This falcon appears to feed mostly on small reptiles, large insects and only occasionally on small birds and rodents (Maclean 1970, Brown *et al.* 1982, Steyn 1982). This would account for its passive co-existence with the Sociable Weaver, a relatively small passerine (27–29g — Maclean 1973, Covas *et al.* 2002). Still, there are reports of Pygmy Falcons preying on Sociable Weaver nestlings (Maclean 1970) and fully fledged birds (De Swardt 1990), but this is believed to only happen occasionally (Maclean 1970). Richard Liversidge photographed a Pygmy Falcon with an adult Sociable Weaver in its talons (Holmes 1987: 17).

Here, we report on Pygmy Falcons preying on Sociable Weaver nestlings on different occasions and displacing most of the inhabitants of one colony at a site near Kimberley, in the Northern Cape Province, South Africa. We also describe the weavers' animosity to the presence of falcons as opposed to the indifference that has been reported elsewhere.

The events reported here took place during a four-year study (1998–2001) of Sociable Weavers at Benfontein Game Farm (Covas 2002, Covas *et al.* 2002). The farm is situated about 6km south-east of Kimberley (approximately 28°53'S, 24°89'E). The study site contains c. 25 Sociable Weaver colonies, 21 of which were monitored almost on a daily basis during the breeding season as part of an ongoing study on the weavers' breeding biology (Covas 2002). Pygmy Falcons were absent from the area during the first two years of the study, although many colonies showed signs of previous occupation by the falcons as evidenced by an accumulation of pinkish faeces around the entrance of some chambers.

From early March 2000 until the end of the weavers' breeding season in late April, a pair of Pygmy Falcons was often seen perching on electricity pylons between two Sociable Weaver colonies. The falcons were seen prospecting at one of the colonies that contained nestlings, but were chased by one of the observers to avoid interference with an ongoing experiment. On another occasion, a Pygmy Falcon (presumably one of the pair observed) was seen at another colony which contained two chambers with weaver nestlings. Both chambers previously contained two chicks, but on inspection one chamber only had one chick remaining. We watched the falcon flying into the chamber that contained the single chick and flying out with the chick in its talons. It perched on a nearby branch and consumed the head first, then the wings, leaving the rest of the body virtually untouched. After the falcon's departure we inspected the remains of the nestling and found the body of the Sociable Weaver chick that was missing from the same chamber. This latter chick had been eaten in the same manner. The chicks were nine and 10 days old. One of the chicks from an adjacent chamber in the same colony also disappeared, but we could not ascertain whether it had also been taken by the Pygmy Falcon. The following season, in October 2000, another Pygmy Falcon (female) was seen taking two nestlings from two different chambers. One of the nestlings was fully feathered (more than 15 days old) and the other was still naked (less than five days old). The fully-feathered nestling was eaten in the same way as described above (we could not see how the smaller chick was eaten).

Whenever we saw Pygmy Falcons at a Sociable Weaver colony the weavers became agitated and started alarm-calling in a manner similar to their reaction to snakes, their main nest predator. This is different from their reaction to predators of adults, such as Gabar Goshawks *Micronisus gabar*. In reaction to the latter, the weavers normally perched quietly under cover, preferably near or in the nest (R Covas pers. obs.).

At the end of the 2000–2001 Sociable Weaver breeding season, a pair of Pygmy Falcons moved into one of the

colonies, still in the same area, and proceeded to lay two eggs. When the falcons moved in, this colony had four chambers with Sociable Weaver eggs or chicks and most of the other nest chambers were used by non-breeding weavers for roosting purposes. The contents of the nests progressively disappeared and none of the chicks fledged, although we never saw the falcons taking eggs or chicks from the chambers. The weavers also stopped roosting in c. 20 chambers in the vicinity of the Pygmy Falcons' nest, as evidenced from spiderwebs accumulating at the entrance of some chambers and general lack of nest maintenance. This colony used to have over 40 birds. It appeared that about half of these had left the colony within less than two weeks of the falcons' occupation. When we caught the Sociable Weavers at this nest at the beginning of the following season (September 2001), the Pygmy Falcons were still occupying the same chambers and there were only 12 Sociable Weavers remaining. Three Sociable Weavers from this colony were subsequently caught at another colony, indicating that some individuals had permanently emigrated from the colony where the falcons had settled.

Hence, our observations at Benfontein contrast with what has been reported elsewhere about the interactions between Pygmy Falcons and their host, the Sociable Weaver. In other areas in the southern Kalahari, it appears that Pygmy Falcons do not displace their hosts and often breed in nest masses with breeding weavers (R Covas pers. obs., Maclean 1973). Additionally, depredation of Sociable Weavers by Pygmy Falcons has been reported as occasional (Maclean 1973, De Swardt 1990). An eight-year study of Pygmy Falcon pellets from the Kalahari showed that birds constituted less than 4% of the falcons' diet, although this could be an underestimate since Pygmy Falcons seem to digest bones very efficiently and hence ingestion of naked nestlings would be difficult to detect (CW Sapsford pers. comm.). Even though we only witnessed predation at three nests, it is worth emphasising that apparently there was only one pair of Pygmy Falcons in the area and our observations took place only during a relatively short period of our study. Furthermore, predation caused by snakes in Sociable Weaver nests is very high (an average 70% of nests get depredated in our area; Covas 2002) and only intensive observation of nests or video recording would allow us to accurately assess the impact of the falcons in this population.

The events reported here raise two questions: (1) how common is predation and displacement of Sociable Weavers by Pygmy Falcons? (2) what are the costs and benefits of this co-habitation for both parties? Further detailed studies in other areas of these species' distribution range would allow answering the first question. Our study area approaches the edge of the Sociable Weaver distribution range and one could speculate that for some reason this type of habitat might be less favourable for the falcons, making them behave atypically. If, however, this behaviour is shown to be widespread, obtaining good estimates of costs

and benefits involved should allow us important insights into the evolution of the close association between species. Maclean (1970) suggested that Pygmy Falcons might be able to deter the snakes that commonly raid Sociable Weaver nests. This is not totally in agreement with our observations at Benfontein and CW Sapsford's (pers. comm.) observations in the Kgalagadi Transfrontier Park of Boomslang *Dyspholidus typus* and Cape Cobras *Naja nivea* prospecting at Sociable Weaver colonies occupied by Pygmy Falcons. Still, it would be worth investigating whether the possible negative impact caused by Pygmy Falcons is overcome by a significant drop in snake predation. A similar situation has been described for Rock Pigeons *Columba oenas* nesting in association with Hobby Falcons *Falco subbuteo*: even though the falcons occasionally prey on pigeons, the pigeon colonies with resident falcons experience higher reproductive success since the falcons keep away other predators (Bogliani *et al.* 1999). More studies are needed to understand the relationship between the closely-associated Pygmy Falcons and Sociable Weavers.

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