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Bird observation

VERTEBRATE PREY OF A FAWN-COLOURED LARK *CALENDULAUDA AFRICANOIDES*

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The larks (Alaudidae) are a predominantly Old World family of passerines that inhabit open ground, often in arid or semi-arid regions. There is a lack of basic natural history knowledge for a number of lark species and the diet of the majority of species is simply described as insectivorous, granivorous or mixed. Detailed knowledge of their diet is only known for a handful of species (de Juana et al. 2004). Despite a wide range of invertebrate prey species being recorded in lark diets, feeding on vertebrates is rare. I present the first observation of a Fawn-coloured Lark *Calendulauda africanoides* preying on a vertebrate; constituting the third lark species to prey on vertebrates.

The majority of larks feed on a mixture of seeds and invertebrates (approximately 70% of the species whose diets are relatively well known) with a few species also feeding on green vegetation (20%) and a minority specialising in feeding on either seeds or invertebrates (10%) (de Juana et al 2004). Sexual differences in diets exist for a number of species, for example Spike-heeled Lark *Chersomanes albofasciata* males feed mainly on tenebrionid beetles while females feed mainly on ants and termites (Willoughby 1971), and in Raso Larks *Alauda razae* males tend to dig more for bulbs while females are more insectivorous (Donald et al 2007). Lark diets also vary seasonally with adults feeding mainly on seeds in winter

and invertebrates in summer (Cramp 1988; Keith et al. 1992; de Juana et al 2004).

Records of vertebrate prey in the diet of larks are restricted to a few larger lark species. Greater Hoopoe-Larks *Alaemon alaudipes* are the only species recorded feeding on vertebrates on multiple occasions; an individual in Bahrain was seen excavating and eating a Gulf Sand Gecko *Stenodactylus khobarensis* (Gallagher and Rogers 1978), there are records from Iran of lizards in the species' diet (Dayani 1985 in Khaleghizadeh and Sehhatisabet 2006) and other populations are anecdotally reported to feed on small lizards (Tieleman et al 2003). The only other record of a lark preying on a vertebrate is a single Thick-billed Lark *Ramphocoris clotbey* collected in western Algeria in October 1920 with the bones of an unidentified small lizard in its stomach (Rothchild and Hartert 1923). The Raso Lark has also been observed to unsuccessfully chase small skinks, however, whether this behaviour is predatory or defensive is unknown (Donald et al 2003). Another instance of the consumption of a vertebrate by a lark are two observations of filial cannibalism in Chestnut-backed Sparrow-larks *Eremopterix leucotis* (Engelbrecht 2013). However, this cannot be classed under normal predatory behaviour as it does not form part of the adult's normal feeding regime. This behaviour may also be driven by the need to remove the dead chick for sanitary reasons as much as for its nutritional benefit (Engelbrecht 2013).

Fawn-coloured Larks are medium-sized larks found across much of southern Africa, from South Africa north to Angola and Zambia. They are found in areas with sandy soils in semi-arid savannahs and more mesic broad-leaved woodlands (Ryan 2004). Fawn-coloured Larks are known to feed predominantly on seeds and invertebrates (Dean 1997). They forage on sandy ground around the bases of tufts of grass, often using their beaks to dig in soft sand (Ryan 2004, Dean 2005).

Analysing the stomach and crop contents of two Fawn-coloured Larks in the Karoo, Dean (1997) found 54% of the seeds consumed to be grass seeds (details of any non-seed proportion of the diet was not reported). Kopij (2005) conducted a more detailed study of the stomach contents of 26 birds and found 97.3% of the food items in their stomachs were seeds while only 2.7% of food items were arthropods including Coleoptera, lepidopteran larvae, arachnids, isopteran and orthopteran. Fawn-coloured Larks have also been reported to predate on Formicidae and Myrmeleonidae larvae (Dean 2005, Keith et al 1992). Contrary to the findings of Dean (1997) and reports in Dean (2005), Kopij (2005) found grass seeds made up only 9% of the plant seeds in Fawn-coloured Larks stomach contents and did not find any evidence of Formicidae or Myrmeleonidae larvae, suggesting diet composition may differ by sex, population, habitat or season. Nevertheless, the results of Kopij's (2005) study showed that Fawn-coloured Larks occupied a more generalist dietary niche by feeding on the widest range of seed types and invertebrate orders compared to any of the other 12 lark species representing eight genera in that study.

On 7 April 2014 at 07.10 a few kilometres north of Nossob camp, Kgalagadi Transfrontier Park, South Africa (unfortunately no GPS coordinates are available), a Fawn-coloured Lark was observed appearing to predate a Common Barking Gecko *Ptenopus garrulus*. The lark was seen and photographed (Figure 1) holding the gecko in its mouth before it ran behind a clump of grass, still holding the gecko, and was lost to sight. Movements of the gecko's mouth and limbs suggest that the gecko was still alive during the period of observation and no attempt to kill or prepare the gecko for consumption was seen. The lark was observed from a vehicle at a distance of approximately 5 metres.

Common Barking Geckos are primarily nocturnal or crepuscular sit-and-wait foragers (Huey and Pianka 1981, Hibbitts et al 2005),



Figure 1 - Fawn-coloured Lark predated a Common Barking Gecko. Circled area highlights a patch of disturbed ground that may be the remains of the gecko's burrow

positioning themselves in the mouth of their burrow to ambush passing prey. Males also call from the entrance of their burrows; while again this behaviour is predominantly nocturnal, males will call at dawn and even on overcast days (Hibbitts 2005). Sitting in the burrow entrance, either while foraging or calling at dawn (when this observation took place) or dusk may make Common Barking Geckos vulnerable to predation by Fawn-coloured Larks which forage by digging in soft sand with their beaks (Ryan 2004, Dean 2005). Highlighted in Figure 1 is an area of disturbed ground in front of the lark that may be the remains of the burrow from which the gecko was caught, potentially in a manner similar to the observation of a Greater Hoopoe-Lark excavating and eating a Gulf Sand Gecko (Gallagher and Rogers 1978). Unfortunately the lark's foraging behaviour prior to capturing the gecko was not observed and it is thus difficult to infer if the gecko was actively targeted or caught opportunistically while foraging for buried invertebrate prey.

Considering that detailed knowledge of Fawn-coloured Larks diets is based on the analysis of the stomachs of 28 birds (Dean 1997; Kopij 2005) and that vertebrate prey has not been recorded previously in the species, the frequency of such behaviour is open to conjecture. The small number of birds analysed in these studies mean it is possible that small levels of vertebrate predation were missed, either because levels of vertebrate consumption are too low to be reliably recorded in a sample of 28 birds or because collection of specimens occurred in populations, habitats or seasons where vertebrate predation does or did not occur. Observations of Fawn-coloured Larks feeding young at the nest may shed light on whether or not vertebrate prey are fed to chicks and are more likely to be taken during the breeding season.

Compared with a number of lark species the diets of Fawn-coloured larks are relatively well known. If the role of small vertebrates in their diet is more than just opportunistic and has been previously overlooked, vertebrate predation may be more common than currently believed throughout the lark family. This may be particularly true in the medium sized and larger species, species that have more generalist and opportunistic diets, and the many species where there is very little known about their feeding habits.

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