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VOCALISATION AND ADDITIONAL VOCAL IMITATIONS IN THE COMMON FISCAL *LANIUS COLLARIS*

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Introduction

The Common Fiscal *Lanius collaris* is a common, widespread species in South Africa and occurs across all biomes although tends to be less common across the central Karoo (Parker 1997, Hockey *et al.* 2005). Current data from the second southern African bird atlas (SABAP2, <http://sabap2.adu.org.za>) shows that the species has a mean overall reporting rate of 68%. The species has adapted well to man-made habitats and is commonly seen in parks and gardens in many towns and cities, and alongside roadsides where it is regularly seen perched on fence posts or telephone poles (Parker 1997).

The species is highly territorial and males defend territories year-round. Vocalisations in the Common Fiscal have been well studied and documented (Vernon 1973, Dean 2005); the song is quite complex and variable and consists of a mixing of warbles, trills and whistles and often includes mimicry of other species. Dean (2005) lists 16 species that the species has known to mimic as part of its song. During April 2014, I recorded, on two occasions, a male singing in my garden (S34°01.985', E18°28.745') in Plumstead, Cape Town, South Africa and documented additional mimicry.



Fig 1 - Photograph of the male Common Fiscal *Lanius collaris* recorded singing near top of a bottlebrush tree.

Methods

Recordings of the male's song were made with an Olympus VN 5500PC Digital Voice Recorder without the use of an external microphone. One recording was made on 9 April 2014 (the bird perched on a power line) and two recordings were made on 10 April 2014 (the bird perched at or near the top of a Bottlebrush *Callistemon* spp. tree). On all occasions I was able to get within a few meters of the singing bird and point the microphone in the direction of the bird.

Results

The first recording <http://vmus.adu.org.za/?vm=BirdPix-24425> lasted 76 seconds. The total recording time for the recordings on 10

April was 266 s <http://vmus.adu.org.za/?vm=BirdPix-24426>.

A total of 11 imitations were able to be identified during both recorded songs of the male fiscal (Table 1 and 2); ten of these were of indigenous species and one which sounds like a Cockatiel *Nymphicus hollandicus*. Up to 70% of the time the bird spent singing included imitations and/or mimicry which were heard at various stages and interspersed with the shrike's usual song warbles and trills (Tables 1 and 2). Cape White-eye *Zosterops capensis*, Common Starling *Sturnus vulgaris*, Cape Weaver *Ploceus capensis* and to some degree Cape Sparrow *Passer melanurus* were the more frequently used mimics (Tables 1 and 2). The male tended to spend longer using Cape White-eye or Common Starling imitations during his song of 10 April than any of the other species (Table 2).

Table 1. Duration and length of snippets of calls imitated by a male Common Fiscal during a 76 second song on 9 April 2014, Plumstead, Cape Town. Refer to sound file <http://vmus.adu.org.za/?vm=BirdPix-24425>.

Species	Time periods and duration (s)
Cape Sparrow <i>Passer melanurus</i>	00:04 – 00:10 (6s) 00:22 – 00:24 (4s) T = 12s
Cape White-eye <i>Zosterops capensis</i>	00:11 – 00:21 (10s) 00:26 – 00:40 (14s) 00:58 – 01:14 (16s) T = 40s
White-throated Swallow <i>Hirundo albigularis</i>	00:41 – 00:43 (3s) T = 2s
Common Starling <i>Sturnus vulgaris</i>	00:51 – 00:56 (5s) T = 5s
Total (All species) = 59s	

Table 2. Duration and length of snippets of calls imitated by a male Common Fiscal during a combined 266 second song on 10 April 2014, Plumstead, Cape Town. Refer to sound file <http://vmus.adu.org.za/?vm=BirdPix-24426>.

Species	Time period and duration (s)
Cape Weaver <i>Ploceus capensis</i>	00:03 – 00:25 (22s) 01:00 – 01:06 (6s) 01:49 – 01:57 (8s) 02:04 – 02:12 (8s) 02:47 – 02:49 (2s) T = 26s
Red-faced Mousebird <i>Urocolius indicus</i>	00:51 – 00:58 (7s) 02:13 – 02:14 (1s) T = 8s
Common Starling <i>Sturnus vulgaris</i>	01:10 – 01:13 (13s) 01:17 – 01:20 (3s) 02:37 – 02:39 (2s) 02:50 – 03:01 (11s) 03:10 – 03:12 (1s) 03:23 – 03:30 (7s) 03:47 – 03:48 (1s) 03:54 – 04:01 (7s) T = 45s
Cape Sparrow <i>Passer melanurus</i>	01:14 – 01:16 (2s) T = 2s
Cape White-eye <i>Zosterops capensis</i>	00:56 – 00:59 (3s) 02:42 – 02:46 (4s) 03:01 – 03:08 (7s) 03:16 – 03:21 (7s) 03:40 – 03:46 (6s) 03:49 – 03:53 (4s) 04:01 – 04:21 (20s) T = 51s
Cape Wagtail <i>Motacilla capensis</i>	01:28 – 01:42 (12s) T = 12s
Cape Bulbul <i>Pycnonotus capensis</i>	01:41 – 01:46 (5s) 03:21 – 03:24 (3s) T = 8s

Red-winged Starling <i>Onychognathus morio</i>	00:50 – 00:51 (1s) 00:33 – 00:35 (2s)	T = 3s
Cape Robin-chat <i>Cossypha caffra</i>	02:26 – 02:36 (10s) 02:40 – 02:41 (1s)	T = 11s
Cockatiel <i>Nymphicus hollandicus</i>	03:13 – 03:15 (2s)	T = 2s
Total (All species) = 167s		

Discussion

The frequent inclusion of Cape White-eye, Common Starling, Cape Weaver and Cape Sparrow imitations in the male's repertoire is not unexpected; all these species occur regularly in or within a radius of 50 m of the garden and call on a regular, almost daily, basis. Of the remaining species the Cape Bulbul and Cape Wagtail are the only species that make sporadic occurrences in the garden.

It is interesting that the bird included a Cockatiel call; there are no known cockatiels in the immediate vicinity of the garden which suggests that the shrike may have heard the call from farther away in the surrounding neighbourhood. I have recorded this male bird up to 100 m from our garden (pers. obs.) The only migrant species identified in the repertoire was that of a White-throated Swallow, an intra-African migrant. These birds usually arrive in early-mid October in our neighbourhood, remain for up to two weeks (during which they are quite vocal) and then leave the area and go elsewhere. This suggests that the shrike, like most mimics, has the ability to recognise and store calls or sounds for later use.

Only two species from this study, Cape Robin-chat and Red-faced Mousebird, are included as listed mimics by Dean (2005) of the

Common Fiscal. However, this is solely based on work done by CJ Skead in the Eastern Cape during the 1990s. Consequently, the following new species can be added to the list of known mimics Common Starling, Cape Sparrow, Cape Bulbul, Cape Weaver, Cape White-eye, Cape Wagtail, White-throated Swallow and Cockatiel. This is the first recorded instance of a domestic caged bird as a mimic in the Common Fiscal.

What is notable from this short study, particularly from the longer 10 April recording, that there is substantial mimicry taking place in amongst the shrike's usual swizzles and warbles. Much of the mimicry is rapid, incomplete and made at frequent intervals, and often with two or more mimicry calls following each other. This made it relatively difficult to discern and extract snippets of the calls being mimicked by the shrike. There may well be more mimicry or imitation occurring here than can be identified; the harshness of the shrike's voice is most likely distorting some of the mimicry and/or imitations taking place (F Peacock *in litt.*).

Mimicry has been recorded in 15-20% of all bird species (Marshall 1950, Goodale *et al.* 2006). Species in the North American family Mimidae are known as the most accomplished mimics, and include the mimic thrushes, jays, mockingbird, catbirds and thrashers. Mynas, a group of birds native to southern Asia, notably India, are exceptionally well known mimics and can imitate both bird and other sounds (e.g. car alarms). In southern Africa, 69 passerine species are known to include mimicry (or imitation) in their calls and/or songs (Vernon 1973) and include well known families such as the larks (Alaudidae), robins and robin-chats (Muscicapidae), shrikes (Laniidae), drongos (Dicuridae), canaries and buntings (Fringillidae) parrots (Psittacidae) and honeyguides (Indicatoridae) (Vernon 1973).

Some species, such as the drongo and honeyguide, are able to mimic non-bird sounds; the drongos are able to mimic meerkats to trigger an alarm call amongst other birds, while honeyguides imitate the noise of a bees nest to lead honey badgers to it. It is well known that most bird mimics include calls or snippets of calls of species occurring in the local patch of the mimicking bird (Marshall 1950, Vernon 1973, Hindmarsh 1986) and that these act as a means of attraction or threat to other species.

Vernon (1973) suggests that there is a differentiation between vocal imitation and vocal mimicry; imitation serves no adaptive purpose whereas mimicry serves a particular function and is usually advantageous for the mimic (e.g. the honeyguide benefits by getting access to honey once the honey badger has eaten enough). Bearing these definitions in mind, are the inclusions of other bird vocalisations in the song of this male fiscal merely a means to imitate other species or to using mimicry to gain some functional advantage?

The vocalisations of the male fiscal in this study were recorded during early April, the start of winter in the southern hemisphere. Although peak breeding in the Western Cape occurs mainly in spring (August–October) birds are known to sing year round (Dean 2005). It is plausible that this male was in the process of setting up a territory prior to the peak breeding season and this was part of demarcating the boundaries of the territory. On each day the recordings were made the bird was located in a different part of the garden reinforcing this male's need to advertise from different locations which then invariably set the perceived boundary of the potential territory. Establishing a territory is one of the main reasons for singing amongst male passerines and it has been suggested the inclusion of

vocalisations from other species adds strength to the individual's singing abilities thereby making him a stronger candidate to find a suitable mate (Vernon 1973). It may also have to do with tricking other species into believing that there are more individuals around and possibly encourage them to move off allowing the mimic greater access to resources. I have only ever seen this single male in the immediate neighbourhood and I suspect that his singing and mimicry is in full defence of him trying to source a mate. No female was seen in attendance with this male in the weeks following the recordings; however on 11 November 2015 an independent juvenile Common Fiscal was seen and photographed in my garden with both parents in attendance. Although I cannot confirm that the male was the individual I recorded singing in April it seems probable that it was and that he had successfully acquired a mate and bred successfully. The actual locality of the nest was unknown. Peacock (2014) found that vocal imitation in the Chestnut-vented Tit-babbler played important roles in establishing territories, mate selection and/or pair-bond formation and is therefore more likely to be associated with breeding activities than with behaviour outside of the breeding season. This supports the observations and recorded imitations in this study.

It would be interesting to follow up with additional recordings to gauge any changes in the amount and/or diversity of mimicry this male fiscal may include in future songs.

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