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# Anting behaviour observed in Cape Sugarbirds *Promerops cafer* at Van Staden's Wild Flower Reserve, Eastern Cape

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## Abstract

During a visit to the Van Staden's Wild Flower Reserve near Gqeberha, Easern Cape, South Africa, a group of Cape Sugarbirds *Promerops cafer* was observed engaging in active anting. Although anting is a well-documented behaviour among various bird species, it appears to be rarely observed or reported in Africa. This may represent the first recorded instance of anting in Cape Sugarbirds.

## Introduction

Anting, a behaviour in which birds apply ants or similar substances—including other invertebrates such as millipedes, caterpillars, wasps, and even non-living items like leaves, flowers, cigarettes and even mothballs in one case, to their feathers, is both peculiar and widespread. First recorded in the 18th century (Morozov 2015), anting has now been documented in over 210 bird species worldwide, primarily among passerines (Simmons 1966, Potter 1970, Chambers & Chambers 1981, Osborn 1998, Clayton et al. 2010). Anting has been recorded relatively infrequently in Africa (Craig 1999).

However, the observation presented here may represent the first recorded instance of anting by Cape Sugarbirds *Promerops cafer* or indeed, by any member of the Promeropidae family. Current evidence places sugarbirds as an early lineage within the large and diverse superfamily Passeroidea.

## Observation

On 2 March 2025, my wife (Melanie) and I visited the Van Stadens Wild Flower Reserve (33.914°S, 25.222°E) near Gqeberha, Eastern Cape, South Africa. Earlier that morning, it had rained heavily; when we entered the reserve, a light drizzle was still falling. The roads were wet, with puddles in places, and the surrounding vegetation was saturated with water.

While driving down one of the smaller gravel roads from the first picnic area at around 07:45, we encountered a group of Cape Sugarbirds. At first, we did not understand what they were doing, because their behaviour appeared unusual. Several birds, about eight to 10 individuals, both males and females were perched on protea bushes along the roadside. They would periodically swoop down and land in the road, hopping around as if searching for something (Figure 1).

When we observed an individual lift its wing and vigorously rub its flank that we realised they were engaging in anting. Suddenly we understood what had originally been a puzzling behaviour (Figure 2).

A bird would land on the gravel vehicle track, hop around and select a single ant. I am not an ant expert, but believe that it was either sugar ants, *Camponotus* spp., or cocktail ants, *Crematogaster* spp. The bird would grasp the ant with the tip of its bill, lift a wing, and vigorously

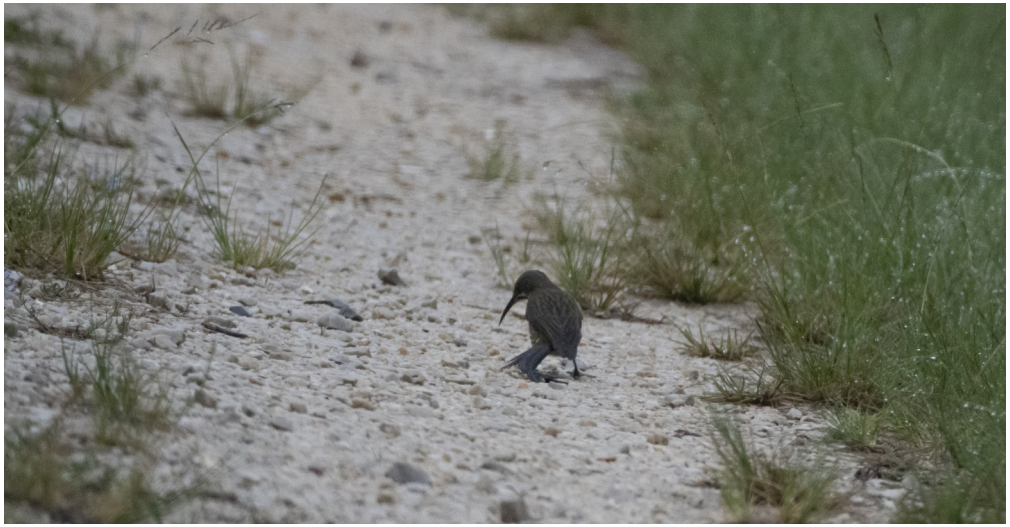

**Figure 1:** Cape Sugarbird female searching for ants in gravel track, Van Staden's Wild Flower Reserve, near Gqeberha, 2 March 2025 .

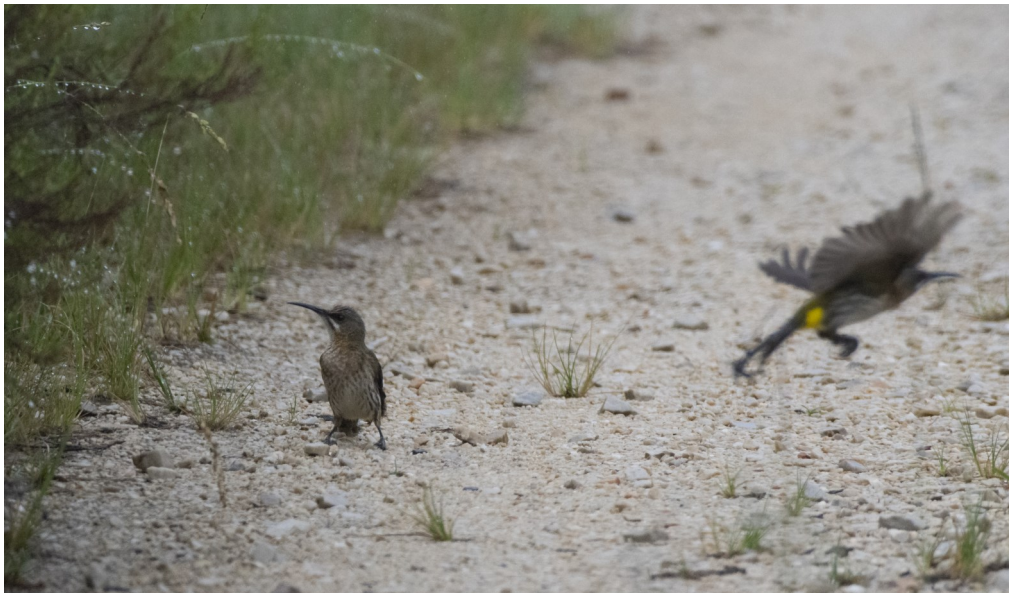

**Figure 2:** Cape Sugarbirds searching for ants in gravel track, Van Staden's Wild Flower Reserve, near Gqeberha, 2 March 2025 .

rub the ant through the feathers along its flank. In the instances we observed, the birds only applied the ant to one side of the body. Afterward, the bird would take flight with the ant still in its bill. It was unclear whether they continued anting while perched, as we did not observe any of the perched birds exhibiting this behaviour. It seemed more likely that the birds were taking the ants away to consume them on a perch (Figure 3).

Although it was difficult to track individual birds, there was a constant rotation of activity by both sexes, some birds were searching for ants, others were actively anting, and some were flying off with ants in their bills. It seems likely that the same individuals were returning repeatedly to collect 'fresh' ants.

## Discussion

Anting occurs in two forms: active anting, where birds pick up ants and rub them onto their plumage (as observed in this case), and passive anting, where birds lie on ant nests and allow the ants to

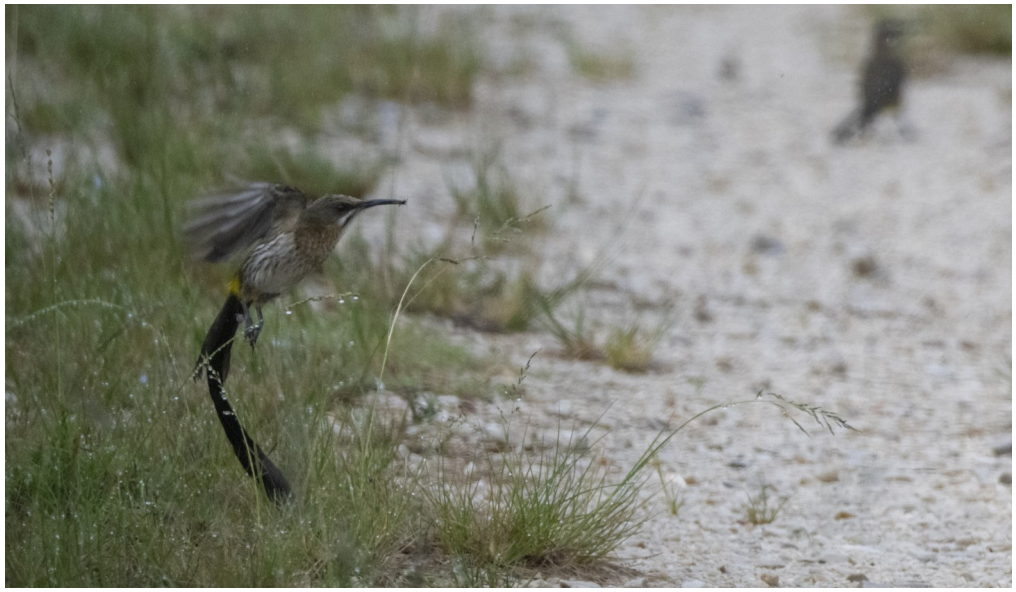

**Figure 3.** Cape Sugarbird male flying off with an ant held in the tip of its bill, after performing active anting, Van Staden's Wild Flower Reserve, near Gqeberha, 2 March 2025 .

crawl through their feathers (Simmons 1985, Morozov 2015). Some species even combine both forms during a single session (Simmons 1957; Wiles & McAllister 2011). A recently described behaviour known as "stamping" involves birds rapidly stamping their feet on swarms of ants. This action appears to provoke a surge in ant activity, potentially enhancing the effectiveness of the anting session by triggering a stronger defensive (and chemical) response from the ants (Ohkawara et al. 2022).

Several hypotheses have been proposed to explain the purpose of anting. The most prominent theory suggests it functions as a form of self-treatment against ectoparasites and infections. Ants, particularly those from the Formicinae subfamily, produce formic acid, which may help deter lice, mites, and microbial pathogens (Hölldobler & Wilson 1990, Clark & Clark 1990, Clayton & Vernon 1993). However, while this hypothesis seems the most plausible, it remains unconfirmed. Many studies have failed to find consistent evidence that anting reduces parasite loads (Morozov 2015).

Findings from a 2022 Japanese study (Ohkawara et al. 2022) support the anti-parasite hypothesis, suggesting that anting may help birds remove ectoparasites and bacteria. In line with earlier predictions (Potter & Hauser 1974, Clayton et al. 2010), anting was observed more frequently during warm and humid conditions, environments that favour parasite proliferation. These weather conditions also coincide with peaks in ant activity, particularly following rainfall when winged reproductive ants emerge for nuptial flights (Hölldobler & Wilson 1990). Interestingly, juvenile birds were also more frequently observed anting, likely due to their increased vulnerability to parasites acquired in the nest (Clayton et al. 2010).

Another hypothesis, first proposed in 1936 by Swedish scientist Adlersparre (Morozov 2015), and revived in recent decades, is that anting functions as a food preparation technique. According to this view, birds use their feathers like blotting paper to remove formic acid or other noxious substances from ants before consumption (Judson & Bennett 1992, Eisner & Aneshansley 2008). This idea gains some support from dietary data: ants made up 10% of the stomach contents in a sample of 14 Gurney's Sugarbirds *Promerops gurneyi* collected in Lydenburg, Mpumalanga (de Swardt & Engelbrecht 2024). During the observation described here, sugarbirds were seen flying off with ants still held in their bills, which could indicate later consumption, though this was not directly observed.

However, this hypothesis may not apply universally. For example, the Japanese Grey Thrush *Turdus cardis* was observed foraging for ants (*Lasius* spp.) without displaying anting behaviour in 42.6% of the cases, leading researchers to question whether food preparation is the main function of anting in that species-ant combination (Ohkawara et al. 2022).

A further theory relates to moulting. Some researchers propose that birds ant more frequently during moult to soothe irritated skin or to control secondary infections such as fungal or bacterial growth (Ehrlich et al. 1986, Revis & Waller 2004, Hutchinson & Kellam 2015). Lunt et al. (2004) found a general positive correlation between active anting and moulting in captive Cape White-eyes *Zosterops pallidus* in South Africa. However, anting was also recorded outside of moulting periods, albeit less frequently.

Potter & Hauser (1974) observed that active anting increased during periods of high humidity, particularly following prolonged or heavy rain. Although they found no direct correlation between anting and parasite loads, they hypothesised that feather wear and loss due to wet weather during moult might explain this increase. They proposed that anting and sunbathing may act as complementary behaviours to relieve discomfort from damp or damaged plumage.

In the present observation, heavy rain had fallen earlier that morning. While we could not confirm whether the observed sugarbirds were actively moulting, photographs revealed that the feathers, particularly the coverts and tail streamers of some individuals were noticeably worn, suggesting that moult may have been underway. The combination of rain (which in turn might have resulted in an increase in ant activity) and feather condition could thus have acted as a trigger for the anting event.

## Conclusion

Despite decades of research, the precise function of anting remains unresolved. The frequency of the behaviour does not appear to align consistently with seasons of high parasite risk, such as wet periods, when infestations are more common (Potter & Hauser 1974, Clayton et al. 2010). Similarly, other proposed explanations remain inconclusive or poorly supported (Potter 1970, Judson & Bennett 1992, Berggren 2005, Eisner & Aneshansley 2008, Hendricks & Norment 2015).

Part of the difficulty in understanding anting lies in its rarity. It is often recorded only once or a few times per species (Morozov 2015). In Africa, this behaviour is especially seldomly observed or reported. For instance, Eastern Cape ornithologist Jack Skead, who spent over 50 years meticulously documenting bird behaviour, recorded just one instance of anting, by a Cape Weaver *Ploceus capensis*.

To date, anting has been recorded in 20 weaver species, but most observations come from captive birds, particularly at the London Zoo. Only five weaver species have been documented anting in the wild: the Cape Weaver, *Ploceus capensis*, Village Weaver *Ploceus cucullatus*, African (Holub's) Golden Weaver *Ploceus xanthops*, Southern Red Bishop *Euplectes orix* and Red-billed Quelea *Quelea quelea*. In each case, the birds used ants from the Formicinae subfamily, known for producing and storing formic acid (Oschadleus 2020).

Why do birds practice anting? More than seventy years after Julian Huxley famously referred to anting as “one of the most famous enigmas in ornithology” at the 1954 International Ornithological Congress, the true purpose of this intriguing behaviour remains elusive (Morozov 2015).

Perhaps there is no single explanation, and the truth lies somewhere between all of these theories; that different bird species engages with different ant species for a variety of reasons, each specific to the particular bird-ant interaction.

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