Why does Sclater's Lark (*Spizocorys sclateri*) place stones around and inside its nest?

The unique and fascinating nest of Sclater's Lark has been described and illustrated by Steyn and Myburgh (1989, 1991), who did original research on the breeding activity and behaviour of this species in Bushmanland to the north of Brandvlei. Two photographs showing the deliberate arrangement of stones around and within nests are reproduced here. In 1988 they monitored 17 nests and in 1990 a further 10. All of the 27 nests had stones placed around them - 130 were counted at one nest and 175 at a second (Figure 1). The deliberate placement of stones inside the nest bowl when the chick hatches is another intriguing aspect (Figure 2). The nests were always in bare open ground with dark shale on the surface and well away from any cover. The parents excavate the hollow in which they construct the nest cup and the clutch is a single egg, whereas other southern African larks lay more than one egg.

Figure 1. The deliberate arrangement of non-reflective stones around this nest containing the single egg shows clearly. No quartz pebbles have been used. The non-random placement of the stones appears to make the nest more conspicuous. Photo: Peter Steyn.

Figure 2. A nest cup containing a day-old chick and several stones placed around the chick by the parents creating what appears to be effective camouflage. Photo: Peter Steyn.

In 1997 Penn Lloyd reported on a single nest of Sclater's Lark that was located in "a bare expanse of quartz gravel" in the Karoo. He proposed that the quartz pebbles placed around the nest were to hide the earth excavated in order to sink the nest cup into the ground, and also because the "highly-reflective quartz pebble surface never reaches the egg-frying temperatures that a darker surface would". The heat-reflection theory needs to be tested experimentally and in making it Lloyd did not refer to the earlier studies of 27 nests placed amongst dark heat-absorbing shale in the Brandvlei district. That stones with contrasting surface properties are used to pave around the nest does not support heat reflection as the purpose. Lloyd (1997) also did not report the deliberate placement of pebbles inside the nest alongside the newly-hatched chick as was detected in several of the Brandvlei nests. Tarboton (2001) has confirmed the use of non-reflective paving around nests but does not mention placement of stones within the nest cup. Lloyd (2005) has repeated the claim that quartz gravel surfaces are preferred for nesting despite the contrary findings of the Brandvlei series and Tarboton.

It is unlikely (but not impossible) that the stones are merely decorative, especially considering remarkable things that various birds do with their nests. Consider the superb nest of the Penduline Tit with an entrance tunnel that closes like velcro, preventing entry by snakes; the complicated woven nests of weavers; and the nest engineering of the Hamerkop. Birds do surprising things in

other ways too. Malleefowl incubate their eggs in compost heaps, and Bowerbirds use decorated mating chambers to seduce females. The Woodpecker Finch in the Galapagos uses a spike such as a cactus thorn to get food (e.g. grubs) from places it can't reach with its beak. These examples make it likely that Sclater's Lark uses stones around and inside its nest for an as yet unproven functional purpose (or purposes).

The postulate that Sclater's Lark uses the stones around and within the nest as camouflage is plausible especially when they are placed alongside the newly-hatched chick in the nest cup (Figure 2). Alternatively, the artificial arrangement of the stones might make the nest more conspicuous (Figure 1).

In addition to the camouflage theory the layer of stones might have a thermoregulatory function that in some way enhances the success of incubation or/and chick survival within the harsh environment where these larks breed. Dark stones around the nest should absorb heat from the sun that may help to regulate the temperature in the ground around the almost subterranean nest, either in the day or at night. Stones inside the nest alongside the newly-hatched chick might be advantageous for camouflage and/or warmth. The temperature theories could be tested in controlled experiments using strategically placed thermoprobes, e.g. is the temperature different under a layer of quartz pebbles?

Other potential structural and/or functional reasons for the stones have been suggested by colleagues and it is hoped that they will use *Promerops* to expand on this interesting and important topic, and that the debate will stimulate ornithologists to undertake more research. Useful inputs from Peter Steyn, Francois van der Merwe, Warwick Tarboton and Jo Hobbs are acknowledged.

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