

Ornithological Observations

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An electronic journal published by the Animal Demography Unit at the University of Cape Town and BirdLife South Africa



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Editor: Arnold van der Westhuizen

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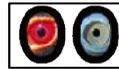
Recommended citation format:

Symes CT, Hiron J 2014. Red-winged Starling *Onycognathus morio* sourcing nest material from live Klipspringer *Oreotragus oreotragus*. Ornithological Observations, Vol 5: 122-125.

URL: <http://oo.adu.org.za/content.php?id=125>

Published online: 18 April 2014

- ISSN 2219-0341 -



RED-WINGED STARLING *ONYCOGNATHUS MORIO* SOURCING NEST MATERIAL FROM A LIVE KLIPSPRINGER *OREOTRAGUS OREOTRAGUS*

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The mutualistic relationship of oxpeckers (2 *Buphagus* species; Family Buphagidae) and large mammals has resulted in the evolution of unique behavioural and morphological characteristics (Hockey *et al.* 2005; Craig 2009). In areas where the niche of obligate gleaner of ectoparasites from large mammals is not filled by oxpeckers it is likely filled by other birds, and more specifically the closely related Red-winged *Onycognathus morio* and Pale-winged Starling *O. nabouroup* (Family Sturnidae; Bean 1970; Fennessey 2003). Indeed, there are numerous accounts of the facultative gleaning of parasites from large mammals by these starlings, both of which have an affinity with Klipspringers *Oreotragus oreotragus* (Tilson 1977; Dean and MacDonald 1981; Maclean 1993). Besides Klipspringer, at least seven other species have been observed to be gleaned by Red-winged Starlings, including Impala *Aepyceros melampus* (Bowker 1995) donkeys, goats, cattle (Dean and MacDonald 1981), Eland *Tragelaphus oryx*, Cape Mountain Zebra *Equus zebra* (Penzhorn 1981; Fry *et al.* 2000), Plains Zebra *Equus quagga* (Chittenden 1979), and Bushbuck *Tragelaphus scriptus* (Mortimer and Roche 2002).



Fig 1 - Red-billed Oxpecker *Buphagus erythrorhynchus* removing hair from Impala *Aepyceros melampus*, Kruger National Park, 21 February 2011.

Photographs: Hugh Chittenden.

Mammal hair is regularly used by southern African starlings as a nest lining (Table 1) which is not surprising given the close relationship of starlings to oxpeckers (Amadon 1943; Cibois and Cracraft 2004; Zuccon *et al.* 2005; Craig and Feare 2009). Other starlings in which hair is recorded in the nest include Golden-breasted Starling *Lamprotornis regius*, Hildebrandt's Starling *L. hildebrandti*, and White-winged Babbling Starling *Neocichla gutturalis* (Feare and Craig 1998; Craig and Feare 2009). The nest of Red-billed Oxpeckers *Buphagus erythrorhynchus* is at least 90% hair (mostly Impala) on a foundation of dung, grass, and rootlets (Stutterheim 1982; Maclean 1993). The sourcing of hair for oxpecker nests is more than likely from live animals (Vincent 1949; H. Chittenden pers. obs., Fig 1). However, given that the association of oxpeckers with the animals on which they perch is an assumed feeding one, little of this behaviour is attributed to the sourcing of nest material. For starlings that are observed with mammals the association may,



in most cases, be for food, and for species where hair is used in lining the nest the source may be assumed to be from dead animals. In the southern Karoo the Pied Starling *Spreo bicolor* has been observed frequently collecting hair from road-killed Bat-eared Foxes *Otocyon megalotis* (Dean in Craig 2005), and Red-winged is known to source human hair, plucked directly from the head (Dean in Craig 2005).

On 22 September 2013, JH photographed a Red-winged Starling (male) on a Klipspringer near the N12 in Meiringspoort (S33°23.268' E22°33.738), Western Cape (Fig 2). The initial impression of the bird's behaviour was that it was searching for ticks before it started plucking hair. Besides the commensal relationship where Red-winged Starlings remove parasites from Klipspringers (Gargett 1975; Tilson 1977) they are also recorded feeding on the secretions from the pre-orbital gland (Roberts 1995; A Craig pers. comm.). This is clearly observed in Figure 2a. In Figure 2b-e the removal of hair, from the Klipspringer, on which the bird is perched, is evident. It might be assumed that hair included in the nest is also collected elsewhere, like dead animals, a barbed-wire fence, or from drains or rubbish bins (A Craig pers. comm.). Jack Skead (in Rowan 1955) recorded cow hair lining a nest, and given the behaviour of the bird mentioned above, we can speculate that it may have been collected from live animals. We know of no direct observations of hair being plucked from live animals by Red-winged Starlings, but suggest that it is a behaviour possibly more common than anticipated.

Birds will source a variety of insulation material from different sources with the diversity of items selected as diverse as the diversity of birds. In addition to insulation the function may vary, from camouflage and predator deterrence to ectoparasite repulsion. In the

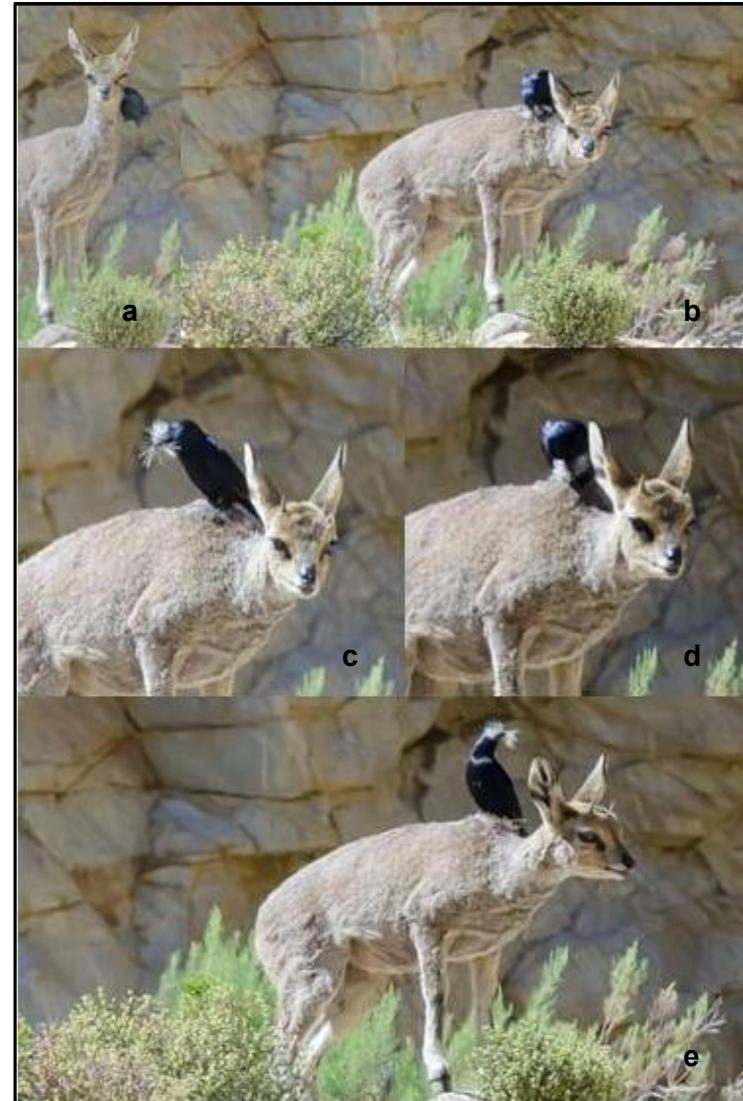


Figure 2. Male Red-winged Starling *Onychognathus morio* feeding on the secretions from the pre-orbital gland of Klipspringer *Oreotragus oreotragus* (a), and removing hair from the back (b-e). Photographs: Jean Hirons.



case of Klipspringer hair the hollow structure is unique among southern African antelope (Skinner and Chimimba 2005). For this reasons it was prized as stuffing for saddles in days gone by (today a myriad of artificial materials are produced for this purpose) (Skinner and Chimimba 2005). The pronounced insulation properties may therefore explain the enthusiastic nature of the individual starling whilst removing hair from this obliging Klipspringer (Fig 2b-e).

Table 1. Southern African starlings (Sturnidae) and oxpeckers (Buphagidae) indicating instances where hair (including wool) has been recorded lining the nest. Summarised from, ¹ Maclean 1993; ² Feare and Craig 1998; ³ Hockey *et al.* 2005; ⁴ Craig and Feare 2009; ⁵ Tarboton 2011.

Species	Hair recorded in nest
Pale-winged Starling <i>Onychognathus naboroupp</i>	Yes ^{1,4}
Red-winged Starling <i>O. morio</i>	Yes ^{1,3,4,5}
Black-bellied Starling <i>Lamprotornis corruscus</i>	Yes ^{1,2,4,5}
Cape Glossy Starling <i>L. nitens</i>	Yes ⁵
Greater Blue-eared Starling <i>L. chalybaeus</i>	Not recorded
Miombo Blue-eared Starling <i>L. elisabeth</i>	Not recorded
Sharp-tailed Starling <i>L. acuticaudus</i>	Yes ^{3,4}
Burchell's Starling <i>L. australis</i>	Not recorded
Meves's Starling <i>L. mevesii</i>	Not recorded
Violet-backed Starling <i>Cinnyricinclus leucogaster</i>	Yes ¹
Pied Starling <i>Spreo bicolor</i>	Yes ²
Wattled Starling <i>Creatophora cinerea</i>	Not recorded
Common Starling <i>Sturnus vulgaris</i>	Yes ^{2,3,5}
Common Myna <i>Acridotheres tristis</i>	Yes ^{2,3}
Yellow-billed Oxpecker <i>Buphagus africanus</i>	Yes ^{1,3,5}
Red-billed Oxpecker <i>B. erythrorhynchus</i>	Yes ^{1,3,5}

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Acknowledgements

Adrian Craig, Hugh Chittenden, and Warwick Tarboton are thanked for comments during the preparation of this article.

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