Afrotropical Bird Biology
Journal of the Natural History of African Birds

Vol 5

First record of small mammal predation by a Bokmakierie on a Forest Shrew in the eastern Free State Province, South Africa

Stephanie L. Payne[*1], *Zinhle Sithole*[1], *Karabo Moloi*[1], *Sandy-Lynn Steenhuisen*[1] and *Grant D. Martin*[1,2]
[1] *Afromontane Research Unit, and Department of Plant Sciences, University of the Free State, Qwaqwa Campus, Phuthaditjhaba 9866, South Africa.*
[2] *Centre for Biological Control, Department of Entomology and Zoology, Rhodes University, Makhanda 6140, South Africa*
**Corresponding author's email: stephanie@thepaynetribe.co.za*

Abstract

We report on a novel observation of predation behaviour exhibited by a Bokmakierie *Telophorus zeylonus* on a Forest Shrew *Myosorex varius*, captured via a Bushnell remote camera trap in the eastern Free State of South Africa. This is the first record of the Bokmakierie preying on small mammals, providing insights into the diet of the Bokmakierie and ecological interactions within this habitat.

Keywords: bushshrike, camera trap, Grassland Biome, *Myosorex varius*, predation behaviour, *Telophorus zeylonus*.

The Bokmakierie *Telophorus zeylonus* (L.) (Family Malaconotidae), a species of bushshrike commonly known as the Bokmakierie, inhabits a variety of environments across much of southern Africa, particularly favouring open areas with scattered shrubs and trees. It is abundant in the Karoo, Fynbos, Grassland and Albany Thicket Biomes, often found in scrubby habitats associated with rocky outcrops and low bushes (Oatley 2005a). Bokmakieries primarily consume insects and other invertebrates, but feed opportunistically on small lizards, snakes, amphibians, small birds, and fruit (Oatley 2005a). These birds typically capture prey on the ground between bushes, stunning them before consumption, but also glean insects from leaves and branches and hawk flying insects from the air (Harris and Franklin 2000, Oatley 2005a). Here we report on a camera trap record showing a Bokmakierie feeding on a shrew, representing the first report of a Bokmakierie feeding on a small mammal species.

The camera trap site was located on a farm in the foothills of the Maloti Mountains (coordinates 28°32'18.80"S; 28°30'31.65"E), a segment of the expansive Drakensberg range in the Grassland Biome of the eastern Free State Province (Figure 1). The site falls in the Drakensberg Grassland Bioregion, known for being among the highest elevation regions in southern Africa and supporting over 60 species of grass (Mucina and Rutherford 2006). Interspersed throughout the grasslands are pockets of Afromontane forest, and invasive shrubs are also common within the landscape (Canavan et al. 2021), providing ideal habitat for both the Bokmakierie and small mammals such as mice and shrews. Bokmakieries are common residents of the region, with 67.8% (n = 115 cards) reporting rate in the pentad, according to SABAP2 (Oatley 2005a; South African Bird Atlas Project 2, 2025).

Four remote, motion-activated camera traps (Bushnell Trophy Cam HD Max-Colour LCD, Bushnell Outdoor Products, Overland Park, KS, USA) were set up in a grassland area that has been heavily encroached by native and invasive woody Rosaceae such as *Rosa rubiginosa* L.. This was part of a study to record bird and small mammal frugivory of *R. rubiginosa* rosehips in fruit caches under *R. rubiginosa* bushes from March to August 2023. On 15 June 2023, at approximately 16:00 local time, one camera-trap recorded a Bokmakierie

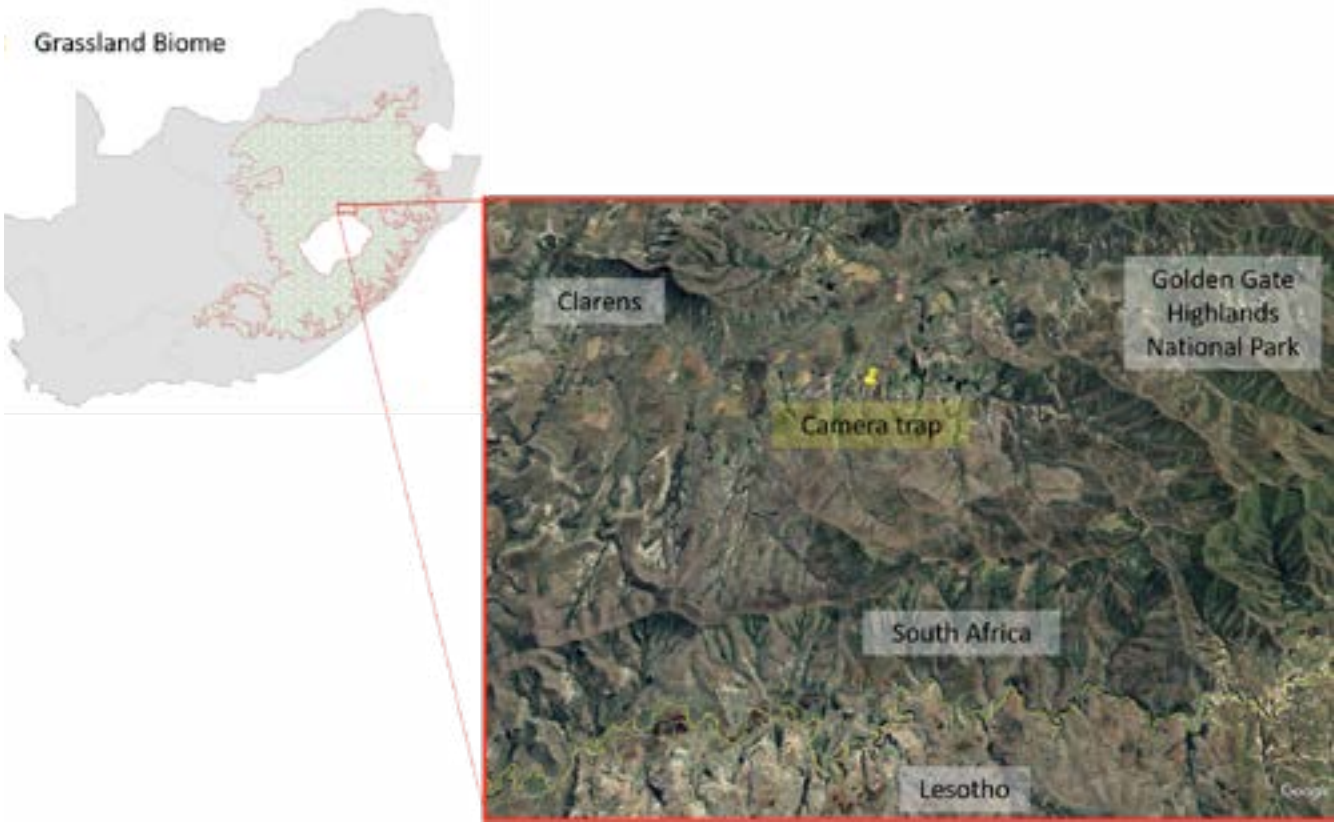

Figure 1. Map of South Africa, showing the Grassland Biome (green) (Mucina and Rutherford 2006) and location of the observation of a Bokmakierie *Telophorus zeylonus* capturing a shrew. Expanded is a satellite image showing the location of the experimental site in the Maloti Drakensberg in relation to the town of Clarens and Golden Gate Highlands National Park..

feeding on a Forest Shrew *Myosorex varius* (Smuts) (Soricidae) (Figure 2). The shrew's identity was independently verified by four South African small mammal experts. The interaction between the Bokmakierie and the shrew was brief, as we do not have footage of the entire event. Although we cannot explicitly confirm that the Bokmakierie did indeed predate on the shrew rather than scavenging, footage preceding the interaction suggests a predation event: a Mesic Four-striped Grass Mouse *Rhabdomys dilectus chakae* (Wroughton) (Muridae) was recorded eating a rosehip and then leaving the site, with no evidence of a shrew in the field of view, suggesting that the shrew may have moved into the field of view and was alive before the interaction with Bokmakierie.

Nevertheless, this is likely still a new dietary record for the Bokmakierie, as there appear to be no published records of Bokmakieries eating small mammal species. It is not unexpected that Bokmakieries would kill and eat a shrew, as the opportunistic nature and physiology of shrikes and bushshrikes lend themselves to small mammal predation (Hockey et al. 2005). Despite this, predation on small mammals, particularly mice, is only recorded for four shrike and bushshrike species (Magpie Shrike *Urolestes melanoleucus*, Southern Boubou *Laniarius ferrugineus*, Southern Fiscal *Lanius collaris* and Tropical Boubou *Laniarius major*; Hockey et al. 2005), with the Grey-headed Bushshrike *Malaconotus blanchoti* being noted to eat “almost any vertebrate that it can catch and subdue” (Oatley 2005b).

The lack of mammals as part of the Bokmakierie diet in literature is possibly because these birds are most likely to encounter small mammals in dense shrubs or undergrowth, making direct observation of such events unlikely. However, small mammal predation by Bokmakieries is probably uncommon. Field notes of Bokmakieries from the Eastern Cape Province did not include any mention of mammal prey (Skead 1995, 1997). A study examining the stomach contents of insectivorous passerines, including Bokmakieries and five other species of shrikes and bushshrikes (Southern Fiscal, Magpie Shrike, Brown-crowned Tchagra *Tchagra australis*, Crimson-breasted Shrike *Laniarius atrococcineus* and Brubru *Nilaus afer*), in semi-arid regions of South Africa, found no mammal remains in a sample of 78 shrike and bushshrike

Figure 2. Bokmakierie *Telophorus zeylonus* (Malaconotidae) holding a Forest Shrew *Myosorex varius* (Soricidae). The inset image has increased contrast and saturation to further highlight the shrew.

stomachs, which included 19 Bokmakierie stomachs (Kopij 2005).

This observation contributes to our understanding of the Bokmakierie's dietary range and predatory capabilities. While previous studies have documented the bird's insectivorous nature, this instance of mammalian predation suggests a broader ecological role than previously recognised. Furthermore, this discovery underscores the importance of employing camera traps in ecological research. Such tools enable scientists to document rare, unexpected, or cryptic behaviours and interactions that might otherwise go unnoticed, thereby enriching our knowledge of natural history, biodiversity, and ecological dynamics (e.g., Steenhuisen et al. 2015, Cozien et al. 2019, Smith et al. 2020).

Acknowledgements

The authors thank Prof. Peter Taylor (University of the Free State), Prof. Neville Pillay (University of the Witwatersrand), Dr Adam Shuttleworth (University of KwaZulu-Natal) and Leigh Richards (Durban Natal Science Museum) for assisting with shrew identification. The authors thank Prof. Ben Smit (Rhodes University) for discussion on Bokmakierie behaviour and Dave Weaver and Adam Riley for literature resources and discussion. Janine Dunlop (Niven Library, Fitzpatrick Institute of Ornithology) is thanked for her assistance in sourcing references. The original study was conducted with ethical approval from the University of the Free State (UFS-ESD2023/005/3) and was funded by the University of the Free State, South African Association of Botanists and the Centre for Biological Control (awards to Z. S.). The authors thank two anonymous reviewers for their comments and suggestions which have greatly improved this note.

References

Canavan K, Canavan S, Clark VR, Gwate O, Richardson DM, Sutton GF, Martin GD. 2021. The alien plants that threaten South Africa's mountain ecosystems. Land 10:1393.https://doi.org/10.3390/land10121393

Cozien R, van der Niet T, Johnson SD, Steenhuisen S. 2019. Saurian surprise: lizards pollinate South Africa's enigmatic 'hidden flower'. Ecology 100(6): e02670. https://www.jstor.org/stable/26675560

Harris T, Franklin K. 2000. Shrikes and Bush-shrikes: Including Wood-shrikes, Helmet-shrikes, Shrike Flycatchers, Philentomas, Batises and Wattle-eyes. London: Christopher Helm (A&C Black).

Hockey PAR, Dean WRJ, Ryan PG (eds). 2005. Roberts Birds of Southern Africa (7th edn). Cape Town: Trustees of the John Voelcker Bird Book Fund.

Kopij G. 2005. Diet of some insectivorous passerines in semiarid regions of South Africa. Ostrich - Journal of African Ornithology 76(1/2): 85–90. https://www.tandfonline.com/doi/abs/10.2989/00306520509485478

Mucina L, Rutherford MC. 2006. The Vegetation of South Africa. Lesotho and Swaziland. Pretoria: South African National Biodiversity Institute (SANBI).

Oatley TB. 2005a. Bokmakierie. In: Hockey PAR, Dean WRJ, Ryan PG (eds), Roberts Birds of Southern Africa (7th edn). Cape Town: Trustees of the John Voelcker Bird Book Fund. pp 700–701

Oatley, TB. 2005b. Grey-headed Bush-shrike. In: Hockey PAR, Dean WRJ, Ryan PG (eds), Roberts Birds of Southern Africa (7th edn). Cape Town: Trustees of the John Voelcker Bird Book Fund. pp 706–707.

Skead, CJ. 1995. Life-history notes on East Cape birds 1940–1990. Vol. 1. Port Elizabeth: Algoa Regional Services Council.

Skead, CJ. 1997. Life-history notes on East Cape bird species 1940–1990. Vol. 2. Port Elizabeth: Western District Council.

Smith JA, Suraci JP, Hunter JS, Gaynor KM, Keller CB, Palmer MS, Atkins JL, Castañeda I, Cherry MJ, Garvey PM, Huebner SE, Morin DJ, Teckentrup L, Weterings MJA, Beaudrot L. 2020. Zooming in on mechanistic predator–prey ecology: Integrating camera traps with experimental methods to reveal the drivers of ecological interactions. Journal of Animal Ecology 89: 1997–2012.https://doi.org/10.1111/1365-2656.13264

Steenhuisen SL, Balmer A, Zoeller K, Kuhn N, Midgley J, Hansen D, Johnson SD. 2015. Carnivorous mammals feed on nectar of *Protea* species (Proteaceae) in South Africa and likely contribute to their pollination. African Journal of Ecology 53(4): 602–605. https://doi.org/10.1111/aje.12225

Afrotropical Bird Biology (ABB) is a free. open–access. online journal for articles that describe aspects of the natural and cultural history of birds in the Afrotropical region. including its offshore islands. These include. but are not restricted to. identification features. sounds. distribution and demography. movements. habitats. diseases and parasites. general habits. foraging and food. breeding. interactions with humans. human cultural beliefs and practices as they pertain to birds. moult and biometrics of birds. ABB publishes original contributions focused on presenting information about the natural history of Afrotropical birds. This includes short communications (<2 500 words. including references) and data papers. All contributions will be reviewed by at least one editor and external. independent referees may also be employed at the discretion of the editors.

https://journals.uct.ac.za/index.php/ABB