SHORT COMMUNICATION

Namibian Journal of Environment

Available online at https://nje.org.na

Received: 14 February 2026
Accepted: 27 March 2026
Published: 10 April 2026
Edited by: Frowin Becker

A teratological case of Monteiro's hornbill (*Tockus monteiri*) with beak deformity in Namibia (Aves: Bucerotiformes: Bucerotidae)

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ABSTRACT This note describes a case of beak deformity in a specimen of Monteiro's hornbill (*Tockus monteiri* Hartlaub, 1865) observed in north-central Namibia. The deformity consisted of an elongated upper mandible. Although this teratology presumably makes it more difficult to find food and maintain its feathers, the observed bird had reached adult size and appeared to be healthy.

KEYWORDS Avian Keratin Disorder; beak abnormality; elongated beak; Monteiro's hornbill; Namibia; rhamphotheca

INTRODUCTION

The rhamphotheca, the outer cornified layer of a bird's beak, plays an important role in several aspects of its life, such as feeding (Navalón et al. 2019), feather maintenance and parasite control (Clayton et al. 2005), social behaviour (Rogers & Kaplan 2000), and sometimes even navigation (Wiltschko & Wiltschko 2013). Deformities of this structure (or teratology) have been recorded in wild specimens of several bird species around the world (e.g. Pomeroy 1962, Craves 1994) and may be either permanent or temporary (Pomeroy 1962). Several causes can induce deformities, either genetic mutations or environmental factors, such as nutritional deficiencies, injuries, contact with chemical pollutants and viral infection (see Pomeroy 1962, Craves 1994, Veltri & Klem 2005, Handel & Van Hemert 2014, Zylberberg et al. 2016, 2018, 2021).

Many cases of beak deformity are recorded as isolated incidents (e.g. Gallo-Ortiz 2011, Rezende 2013, dos Santos et al. 2018, Hodges et al. 2019, Crozariol 2020, Íthalo et al. 2021, de Moura et al. 2022, Tinajero 2023, Tenez 2025), but some can be traced back to epizootic phenomena. One remarkable case is that of wild birds in Alaska, where since the 1990s beak deformities have been recorded in more than 2 500 specimens of 30 bird species (Handel et al. 2010, Van Hemert & Handel 2010). An especially high frequency was documented in Black-capped Chickadee (*Poecile atricapillus*) populations (Handel et al. 2010, Van Hemert et al. 2012, Zylberberg et al. 2016, 2018, 2021), in which an epizootic has been suggested to cause crossed or elongated beaks. This has been termed Avian Keratin Disorder (AKD), and it has afflicted an average of 6.5% of the adult population annually over the course of a decade (Handel et al. 2010).

In related literature most cases of beak teratology are described in American birds (e.g. Handel et al. 2010, Van Hemert & Handel 2010, Van Hemert et al. 2012, 2025, Bianchini & Arenas 2014, 2018, Gorosito et al. 2016, dos Santos et al. 2018, Valdebenito et al. 2018, Zylberberg et al. 2016, 2018,

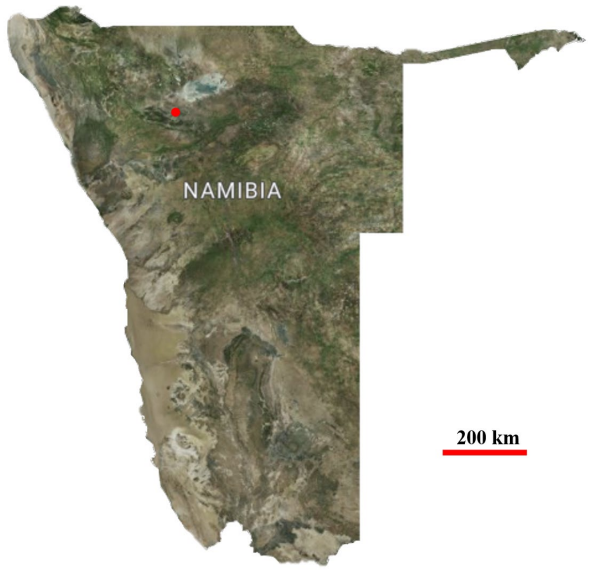

Figure 1 Map of Namibia with the observation site indicated in red.

2021, Hodges et al. 2019, Purificação, 2019, Smith et al. 2019, Íthalo et al. 2021) and few cases have been reported from the other continents, with some notable exceptions, such as Harrison (2011) for the United Kingdom. In this note a case of beak abnormality is described, concerning a specimen of Monteiro's hornbill (*Tockus monteiri* Hartlaub, 1865) in Namibia - a species which is native to dry thorn savanna in south-western Africa (Simmons 1997, Barnes et al. 2024).

OBSERVATION

A teratological specimen of Monteiro's hornbill was observed on the morning of 22 August 2025 (at around 06h45, local time) at the Eagle Tented Lodge and Spa, located within Kunene Region, south of Etosha National Park, Namibia (Figure 1). The coordinates of the location of observation are 19.3853° S, 15.6870°E.

This specimen showed a notable beak alteration, with the upper mandible substantially elongated (Figure 2a). It was observed for some minutes on a branch a few meters away from a conspecific (Figure 2b). Despite this deformity, the bird appeared to be healthy, with well-preened plumage, and similar in size to other conspecifics.

Figure 2 a) The Monteiro's hornbill with the elongated upper mandible; b) A conspecific from the same location with a normal upper mandible (photos: F. Ceccolini).

DISCUSSION

Attention to AKD cases has grown in recent years, as demonstrated by the global citizen science project on birds with deformed beaks, which was launched by iNaturalist in 2019 (iNaturalist 2026). However, there are still only few cases of beak teratologies reported in Africa. In addition to the documented presence of a *Circovirus* that causes Psittacine Beak and Feather Disease (PBFD) in parrots and other birds and that can induce beak deformities and other pathologies (Heath et al. 2004, Downs et al. 2015, Regnard et al. 2015), the known records come mainly from few countries including Algeria (Belkacem et al. 2025) and South Africa (Jones et al. 2015).

I found no other cases of beak deformity of Monteiro's hornbill in the literature, nor on iNaturalist (2026). In this note I have described, to the best of my knowledge, the first occurrence of a beak abnormality in this species, which can serve as a basis for possible future observations. Based on my observation, it was not possible to establish the etiology (genetic or viral) of the keratin disorder described. Only future observations and more detailed analyses (through clinical observation, molecular testing, and histopathology) of similar records in other Monteiro's hornbill specimens of the region could help to draw possible links epizootic origins. Previous studies have shown that avian keratin disorder frequently results in severe health consequences (often lethal) for affected birds (Van Hemert et al. 2012).

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