Unusual Predatory Behaviour by Mole Snake on African Penguin at Robben Island

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Unusual Predatory Behaviour by Mole Snake on African Penguin at Robben Island

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Abstract

Robben Island, Table Bay, South Africa, is an Important Bird Area, and many of the seabird species breeding on Robben Island are of conservation concern. In particular, the African Penguin *Spheniscus demersus* is Critically Endangered. The island hosts 18 species of reptiles. During the 2024 annual African Penguin census, a Mole Snake *Pseudaspis cana* was observed attempting to constrict and presumably overpower an adult African Penguin. This is a phenomenon which has not previously been observed. This incident serves as a reminder of the many challenges face by the African Penguin.

Introduction

Robben Island (33º48'18" S 18º22'12" E) in Table Bay, South Africa, has been selected as an Important Bird Area; many of the seabird species breeding on Robben Island are of conservation concern (Marnewick et al. 2015). The island hosts one of the largest African Penguin *Spheniscus demersus* breeding colonies; the conservation status of this penguin deteriorated to Critically Endangered in 2024 (Crawford et al. 2013, BirdLife International 2024, Sherley et al. 2024, Lee et al. 2025). The island is also an important breeding site for Bank Cormorant *Phalacrocorax neglectus*, (Endangered), Cape Cormorant *P. capensis* (Endangered), Crowned Cormorant *P. coronatus* (Vulnerable), Hartlaub's Gull *Chroicocephalus hartlaubii* (Vulnerable), Greater Crested Tern *Sterna bergii* and African Oystercatcher *Haematopus moquini* (du Toit et al. 2003, Lee et al 2025).

The island is also known for its diversity of reptiles; 18 species have been recorded (Crawford & Dyer 2000. The earliest records of the Mole Snake *Pseudaspis cana* on the island were made in 1610 (Branch 1991, Crawford & Dyer 2000). Adults on the island are, on average, shorter and thicker in girth than those on the mainland (Crawford & Dyer 2000, Alexander & Marais 2007). These snakes are known to exhibit behavioural and morphological differences from those found on the adjacent mainland (Crawford & Dyer 2000, Underhill et al. 2009). Mole Snakes are constrictors, and on the mainland they mainly predate on a range of small mammal species, but on Robben Island, they feed almost exclusively on bird eggs (FitzSimons 1970, Dyer 1996, Calf 2004, Underhill et al. 2009, Marais 2022). Up to now, encounters between Mole Snakes and seabirds on Robben Islande were limited to prefledging chicks (e.g. FitzSimons 1970, Dyer 1996, Calf 2004, Underhill et al. 2009).

The annual survival of Mole Snakes on Robben Island seems to be dependent on the continuous availability of the eggs of one or more ground-nesting bird species breeding at the island: Cape Spurfowl *Francolinus capensis*, Greater Crested Tern, Hartlaub's Gull, African Oystercatcher and Helmeted Guineafowl *Numida meleagris* (Dyer 1996, Calf 2004, Quintana et al. 2021). Mole Snakes have been recorded eating abandoned African Penguin eggs (Figure 1) (Dyer 1996, Calf 2004). During the cold winter months, which coincide with

the peak breeding season for African Penguins (Crawford et al. 2013), the snakes are largely inactive and generally do not feed (BM Dyer pers. obs). This reduces the likelihood of interactions between Mole Snakes and African Penguins.

Figure 1: Mole Snake with a bulge, suspected to have swallowed an African Penguin egg on Robben Island, 27 June 2024.

Observation and discussion

On 27 June 2024, in midwinter, a Mole Snake was observed constricting and trying to kill an adult penguin (Figure 2). There were three dead African Penguin chicks, one belonging to the adult wrapped by the snake and the two larger chicks which were too big to swallow (Figure 3) were from a nest close by. In 2024, the number of breeding pairs of Greater Crested Terns *Sterna bergii* on Robben Island was estimated to 6,600 and there were more than 1,100 breeding pairs of Hartlaub's Gulls *Chroicocephalus hartlaubii* (DFFE unpubl. data). For both these species breeding had peaked two months prior to the observed incident (DFFE unpubl. data).

This shift in available prey may not suggest a dietary change in Mole Snakes, the behaviour may have been influenced by the warm spells experienced in the first months of the winter of 2024, especially during the day of the observation, when a temperature of 27°C was recorded. It is hypothesised that the warmer onset to winter may have resulting in Mole Snakes hunting further into the winter than in normal years, when snakes would generally have been inactive during the period. Such predation has never been observed before and is the first of its kind. This behaviour is rare and may be limited to a small number of young, inexperienced snakes, as evidenced by the scars on many Mole Snakes observed in recent years.

This is the first observation of a Mole Snake attempting to constrict an adult African Penguin; this behaviour has not previously been recorded. If this behaviour is even occasional, it adds a new threat to those already facing the African Penguin (Lee et al. 2025). Examples of these threats include food shortages, attributable to overfishing and global climate change (Crawford et al. 2011, Cambell et al. 2019); nest habitat destruction, especially the ongoing impact of historic guano collection forcing penguins to nest in the open (du Toit et al. 2003); oil pollution, both chronic (Parsons & Underhill 2005) and catastrophic (Underhill et al. 1999, Crawford et al. 2000); predation by feral cats and other mammalian predators, and birds such as Kelp Gull (du Toit et al. 2003) and potentially Pied Crow *Corvus albus* (Underhill 2025). New causes of mortality, observed for the first times in 2021 and 2024, resulted from penguins predated by a Cape Clawless Otter *Aonyx capensis* (Snyman et al. 2025a) and being stung in the featherless area close to their eyes by Cape Honeybees *Apis*

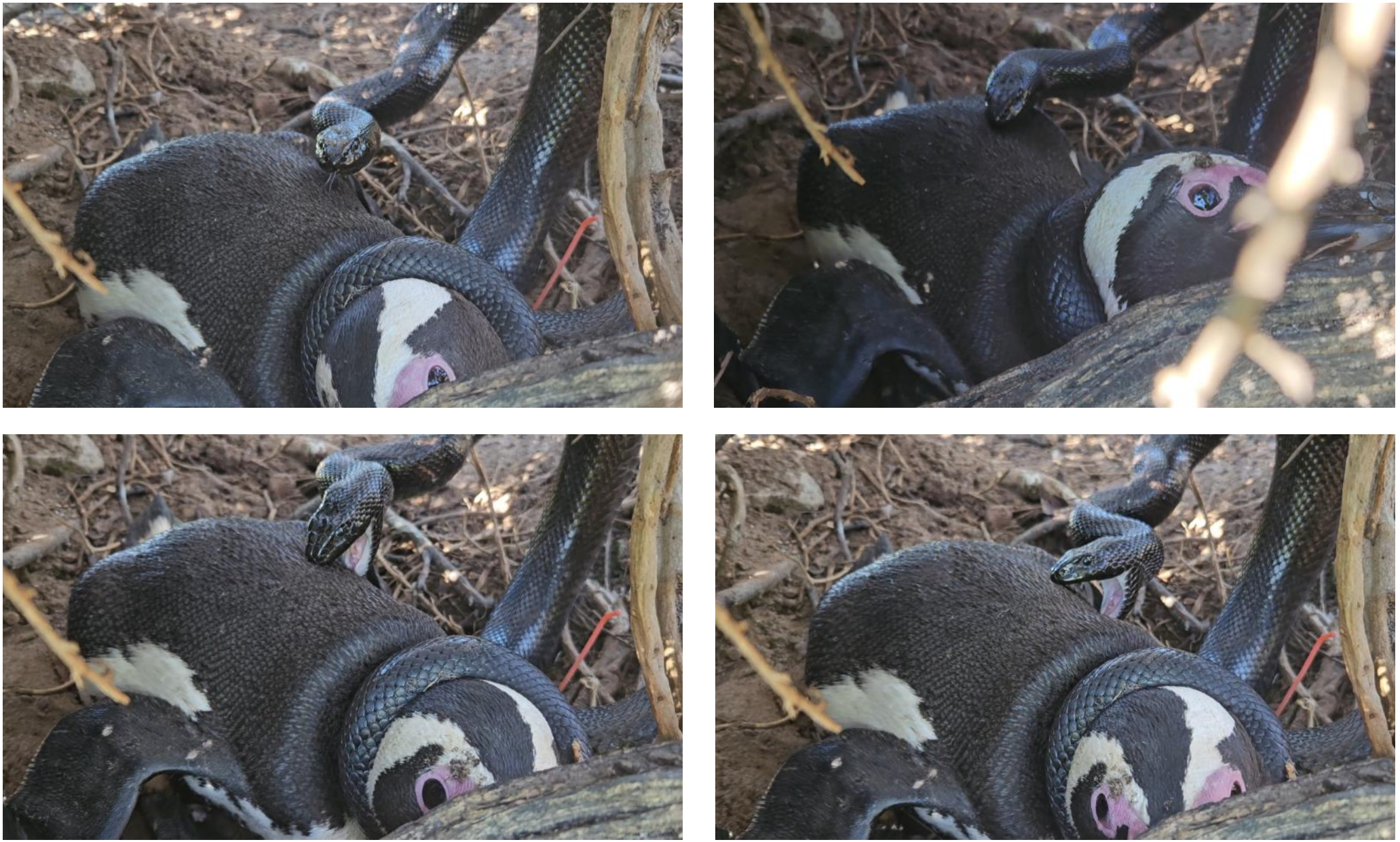

Figure 2: Two views of a Mole Snake strangling (top) and two views of attempting to swallow (bottom) an adult African Penguin on a nest, on Robben Island, 27 June 2024.

Figure 3: Two dead African Penguin chicks with visible saliva mucus from Mole Snake as an attempt to swallow, on Robben Island, 27 June 2024.

mellifera capensis (Snyman et al. 2025b). Avian influenza is another emerging threat (Molini et al. 2020, Peyrot et al. 2022). Researchers and colony managers need to remain vigilant. This observation underscores the importance of adaptive and comprehensive ecosystem management.

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