Short Communication

Arid-System Carnivore at Low Detectability: Evidence of Mellivora capensis Persistence Near Zaranik

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Abstract

We report a contemporary, georeferenced record of the honey badger (*Mellivora capensis*) from North Sinai, Egypt: an adult skull found on 13 March 2023 in psammophytic shrubland ~5 km from Zaranik Protected Area. Diagnostic cranial and dental traits confirm identity. The shrub-dominated dune–sabkha–wadi mosaic typifies the species' arid-land ecology and low detectability, indicating patchy occupancy along the northeastern Sinai margin. Although based on a single specimen, this spatially referenced record provides contemporary evidence of persistence and motivates targeted, non-invasive monitoring to refine occurrence mapping. To our knowledge, it constitutes the first georeferenced, post-2014 physical evidence of *M. capensis* in northeastern Sinai and aligns with habitat features predicted to support arid-carnivore occurrence.

Keywords:

honey badger; Mellivora capensis; North Sinai; Egypt; Zaranik Protected Area.

Introduction

The honey badger (*Mellivora capensis*, Mustelidae) is a wide-ranging omnivore occurring across Afro-Arabian drylands and adjacent steppes (Begg *et al., 2013;* Do Linh San *et al., 2016*). Despite its broad extent, encounter rates are generally low due to nocturnal and fossorial habits and naturally low densities (*Begg et al., 2003*). In Egypt and the Arabian Peninsula, records are scattered, with few or no verified records from the Nile Valley and use of habitats offering vegetative cover and denning opportunities (*Basuony et al., 2010; Vanderhaar & Hwang, 2003*). In northeastern Sinai, the species was reported just south of Ain (Ein) el-Qudeirat (*Saleh & Basuony, 2014*). Here, we report a 2023 North Sinai record (approximately 5 km from Zaranik Protected Area) and contextualize it alongside prior published occurrences from northeastern Sinai near Ain (Ein) el-Qudeirat in Egypt, the Negev system in Palestine, Burqu Nature Reserve in northeastern Jordan, and Tabuk Province in Saudi Arabia, underscoring the species' regional rarity and conservation relevance (*Saleh & Basuony, 2014; Hamidan, 2023; Aloufi & Amr, 2018; Werner, 2012*). To our knowledge, this is the first georeferenced, physical record post-2014 confirming persistence of *M. capensis* in northeastern Sinai and it aligns spatially with habitat features predicted to support arid-carnivore occupancy (dune–sabkha–wadi mosaics).

Materials and Methods

The site lies on the North Sinai coastal plain, approximately 5 km from the boundary of Zaranik Protected Area. Substrates comprise calcareous sands and semi-fixed dunes intergrading with halophytic depressions (sabkha margins) and low gravelly plains (*El-Bana, 2006; El-Bastawisy, 2006; Galal, 1999*). Vegetation is a psammophytic–halophytic mosaic dominated by perennial

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shrublands and grass–forb patches—principally *Convolvulus lanatus, Echiochilon fruticosum, Pancratium sickenbergeri*, and *Centropodia forsskaolii*, with scattered Tamarix—underlain by an ephemeral winter–spring annual layer (notably *Erodium crassifolium, Senecio glaucus coronopifolius, Ononis serrata, Polycarpon succulentum*) that flourishes after winter precipitation (*Attum et al., 2021*). This habitat matrix offers potential den sites via reused fox burrows—especially those of red fox (*Vulpes vulpes*) and fennec fox (*Vulpes zerda*)—and within large rodent burrow systems *(jirds, gerbils, jerboas*), and it provides foraging opportunities for *Mellivora* through invertebrate nests, small vertebrates, and carrion (*Hoath, 2009; Soliman & Mohallal, 2016*).

Field observation and identification

The opportunistic field observation was georeferenced in situ with a handheld GPS under the WGS84 datum (EPSG:4326); device-reported horizontal error was <10 m, provided alongside the coordinates. Species identity was determined from diagnostic cranial and dental characters consistent with regional treatments of the honey badger *Mellivora capensis* and contemporary distribution syntheses for the Levant and adjoining Arabia.

To situate our record in its regional biogeographic context, we collated published occurrences from three peer-reviewed sources: a 30-year synthesis of small-carnivore records from Palestine (*Werner, 2012*), a faunal account from Tabuk Province, northwestern Saudi Arabia (*Aloufi & Amr, 2018*), and a locality report from Burqu, eastern Jordan (*Hamidan, 2023*). For records reporting explicit coordinates, we transcribed values verbatim. Where publications provided only toponyms (e.g., checklist entries or distribution maps), we derived coordinates via gazetteer-based point–radius georeferencing (WGS84) at the smallest unambiguous spatial unit and retained the resulting coordinate uncertainty for interpretation rather than analytical weighting. Spatial comparisons used great-circle (haversine) distances, expressed in kilometers, between the Sinai observation and the nearest verifiable locality within the Negev system in Palestine; additional distances were calculated to the Tabuk and Burqu localities to summarize regional context. No live animals were handled, and the skeletal remains were documented under the field authorization framework of the Nature Conservation Sector.

Results

Egypt — North Sinai (31.024090°, 33.343820°). On 13 March 2023, skeletal remains consistent with an adult *Mellivora capensis* were located within psammophytic shrubland on the northern Sinai coastal plain (≈5 km from Zaranik Protected Area). The skull exhibits the robust cranium, broad rostrum, and dentition characteristic of *Mellivora* (Figure 1).

For spatial context, distances from the North Sinai site to three literature-based localities are as follows, ordered by proximity:

(i) Palestine — Negev system; coordinates taken directly from the cited locality description cited in (*Werner, 2012*): ≈137 km.

(ii) Jordan — Burqu Nature Reserve (32.669095°, 37.835977°); observation on 2 July 2022 (*Hamidan, 2023*): ≈462 km.

(iii) Saudi Arabia — Tabuk Province (27.648889°, 38.615833°); coordinates as published (*Aloufi & Amr, 2018*): ≈635 km.

Discussion

The North Sinai record is consistent with post-2014 evidence for honey badger in northeastern Sinai—specifically the report from just south of Ain (Ein) el-Qudeirat—while earlier national syntheses listed no verified Egyptian records at the time

Figure 1. Skull of Mellivora capensis recovered from psammophytic shrubland on the North Sinai coastal plain, Egypt, 13 March 2023 (31.02409° N, 33.34382° E). Photographs by the author.

(*Saleh & Basuony, 2014; Basuony et al., 2010*). To our knowledge, this is the first georeferenced, post-2014 physical record confirming persistence of *Mellivora capensis* in northeastern Sinai, refining spatial context relative to Zaranik Protected Area. Persistence inference remains probabilistic; however, temporal proximity to recent records (2014–2023) strengthens the case for local continuity.

Interpreted against localities in southern Palestine (Negev) and additional points in Jordan and northwestern Saudi Arabia, the distributional pattern suggests patchy occupancy along shrub-dominated dunes, sabkha margins, and wadi systems rather than continuous distribution across the corridor (*Werner, 2012; Hamidan, 2023; Aloufi & Amr, 2018*). This accords with the species' arid-land ecology—low densities, nocturnal and fossorial habits, and reliance on cover and denning opportunities—which collectively reduce detectability even where the species persists (*Begg et al., 2003; Vanderhaar & Hwang, 2003; Begg et al., 2013*).

The regional dune–sabkha–wadi mosaic also supports small carnivores such as red fox (*Vulpes vulpes*) and fennec fox (*Vulpes zerda*), indicating ecological continuity that likely facilitates *Mellivora* persistence despite detection scarcity. Carcasses and skeletal remains provide valuable evidence for such low-density species, though spatial inference should remain restricted to the immediate discovery context. Targeted non-invasive monitoring around Zaranik—camera trapping, track-and-sign surveys, and documentation of opportunistic remains—would enhance detectability and refine occurrence mapping without assuming continuity between widely spaced observations.

Conclusion

This study provides contemporary, georeferenced confirmation of the honey badger (*Mellivora capensis*) in North Sinai, representing the first post-2014 physical evidence of persistence in northeastern Egypt. The record supports a pattern of patchy occupancy within arid dune–sabkha–wadi mosaics that typify the species' ecology across the Afro-Arabian corridor. Focused, non-invasive monitoring around Zaranik Protected Area—such as camera trapping and track-and-sign surveys—should help verify continuity, improve detectability, and inform conservation strategies for low-density carnivores in desert ecosystems.

Author Contributions

B.R. conceived the study, conducted fieldwork, analyzed data, and wrote the manuscript.

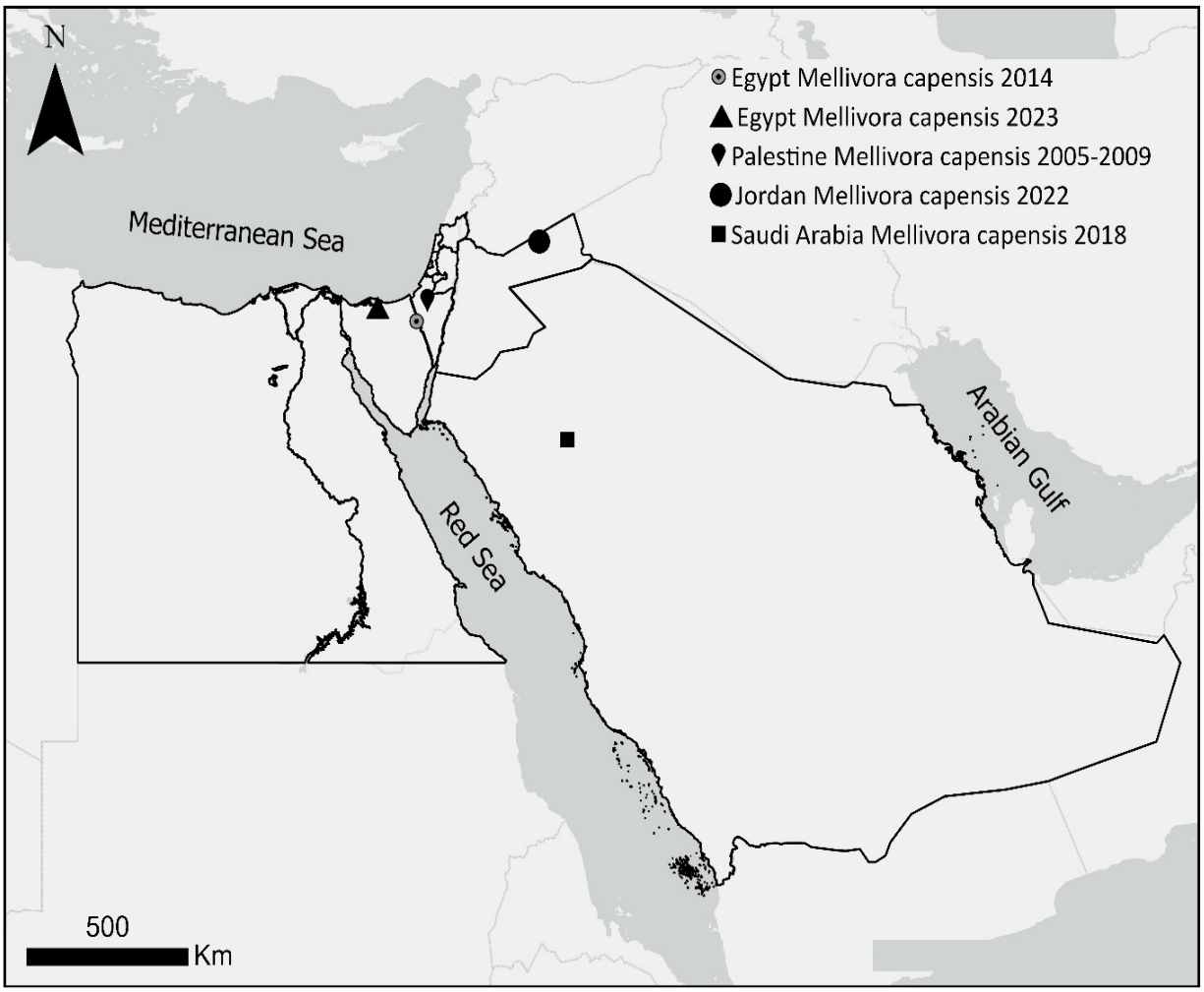

Figure 2. Contemporary *Mellivora capensis* records used for spatial context: North Sinai (this study), a locality in southern P (Negev), Burqu Nature Reserve (Jordan), and a locality in Tabuk Province (Saudi Arabia).

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