

Extending the known range of the Crowned Leafnosed Snake, *Lytorhynchus diadema* (Duméril et al., 1854), in Jordan's Eastern Desert

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The Crowned Leafnosed Snake (*Lytorhynchus diadema*) is currently listed as a species of Least Concern, with stable populations across its range (Amr et al., 2013). Globally, *L. diadema* lives in a broad belt from North Africa across the Sahara and Sahel to the Middle East and western Iran, occupying arid and semi-arid habitats, including sandy and stony deserts, gravel plains, steppe, and sabkha. Its range encompasses the Maghreb, the Sahara, the Arabian Peninsula, and the Levant (Amr and Disi, 2011; Eid, 2021). In Iraq, the taxon reported as *L. d. gaddi* from desert areas of Basrah Province in the south (Afrasiab et al., 2018; Salman, 2019) is currently treated as the species *L. gaddi*. In Saudi Arabia, *L. diadema* is common across southwestern, central, and eastern regions, including records near Yanbu on the Red Sea coast (Gasperetti, 1988; Aloufi et al., 2021) and Neom along the Gulf of Aqaba (Elmirghani et al., 2025). Recent molecular studies have led to the documentation of populations from Ha'il and Ta'if Provinces, confirming their placement within the Arabian clade, which is genetically distinct from North African populations (Alshammari et al., 2021). The Arabian clade also encompasses populations from Yemen and Oman, highlighting the continuity of distribution across the Arabian Peninsula.

In Jordan, *L. diadema* is documented from scattered desert and steppe sites, highlighting its patchy yet broad distribution (Fig 1A). Earlier records confirmed its occurrence in Azraq and Petra (Disi, 1985; Gasperetti, 1988), with subsequent verified observations from Wadi Ramm, Al Mudawwarah, and Al Quweira (Disi et al., 2001; Abu Baker et al., 2004). Museum specimens further corroborate its presence in Azraq (Al-Oran, 2000). The taxon historically referred to as *L. d. kennedyi*

has been reported from Azraq, Al Jafr, and Al Atarat, where individuals exhibit the characteristic orange-reddish coloration with dark transverse spots (Al-Oran, 2000; Al-Saraireh and Ghyada, 2018). This taxon is currently recognized as the distinct species *L. kennedyi*. In contrast, more recent field surveys have expanded the known range of *L. diadema*, encompassing both the typical and *kennedyi* forms, to additional sites including Swaqa, Hallabat, Qaser Amra, Dabat Hanoot, Ghal, and several protected areas such as the Azraq Wetland Reserve, Shumari Wildlife Reserve, and Wadi Rum Protected Area (Eid, 2021).

On 3 September 2025 at around 18:00 h, a local resident with authorization to visit a restricted-access gas extraction site in Mafraq Governorate, eastern Jordan, encountered an adult *L. diadema*. The snake was captured and transferred to one of his colleagues, who informed me. I requested that the collector document the snake with high-resolution photographs (Fig. 1B) and record precise location data, which was subsequently shared with me. Unfortunately, the snake died while in captivity and was preserved in ethanol, allowing me to examine it and confirm its identification as *L. diadema*. The specimen remains in my private collection. The locality was later pinpointed on site using a GPS-enabled device (32.5266°N, 38.8727°E). The site lies within the Saharo-Sindian (Arabian) subzone at an elevation of 60 m and can be characterized as a gravel hammada, a desert plateau with sparse perennial shrubs, dominated by goosefoot (Chenopodiaceae), daisies (Asteraceae), and ephemeral annuals following rainfall. The landscape is largely open and stony, with very low vegetation cover and shallow depressions that channel episodic runoff (Taifour et al., 2022).

This new record of *L. diadema* provides valuable evidence that the species is more widely distributed in Jordan than previously documented (Eid, 2021). When integrated with earlier records from Azraq, Petra, Wadi Ramm, and southern desert localities (Disi, 1985;

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Gasperetti, 1988; Al-Oran, 2000; Abu Baker et al., 2004; Al-Sarairoh and Ghayada, 2018; Eid, 2021), the Mafraq finding extends the known range in Jordan along a broad north–south axis from the Azraq Basin to Wadi Rum. This demonstrates that *L. diadema* is not narrowly restricted but persists as a localized yet widespread inhabitant of Jordan’s arid landscapes. We acknowledge that the species also occurs in neighbouring countries of Jordan, but due to limited records in these countries, I have restricted my representation of its distribution here to the area within Jordan.

Ecologically, the Mafraq locality highlights the adaptability of *L. diadema* to the characteristic gravel hammadas of the Saharo-Sindian subzone, a vegetation type that dominates much of Jordan’s eastern desert. When considered alongside records from sandstone and granite habitats in Petra, chert plains in the Badia, and sandy systems further south, the species

is clearly tolerant of a range of arid physiognomies (Taifour et al., 2022). This habitat plasticity mirrors regional patterns, with desert populations in Basrah, Iraq, and across Saudi Arabia, where the Arabian clade is genetically distinct from North African lineages. Such breadth in habitat use suggests that *L. diadema* is ecologically resilient, capable of occupying diverse desert environments across its range. Beyond ecological factors, widespread negative perceptions and limited public ability to distinguish non-venomous desert snakes from dangerous species in Jordan have been shown to drive indiscriminate killing of snakes, which may contribute to under-reporting and localized population pressures even on common species such as *L. diadema* (Eid et al., 2021).

Acknowledgements. We gratefully acknowledge Nour El-Deen Badr Abo Al-Bsoul and Ahmad Talal Al-Rousan for providing the specimen and facilitating photo documentation from the restricted site. Their support demonstrates how collaboration with individuals granted access to closed areas can yield valuable records that advance our knowledge of elusive desert species. We also sincerely thank Mr. Lukáš Pola for conducting a pre-review of the manuscript and for providing valuable comments and suggestions that helped improve the quality of this article.

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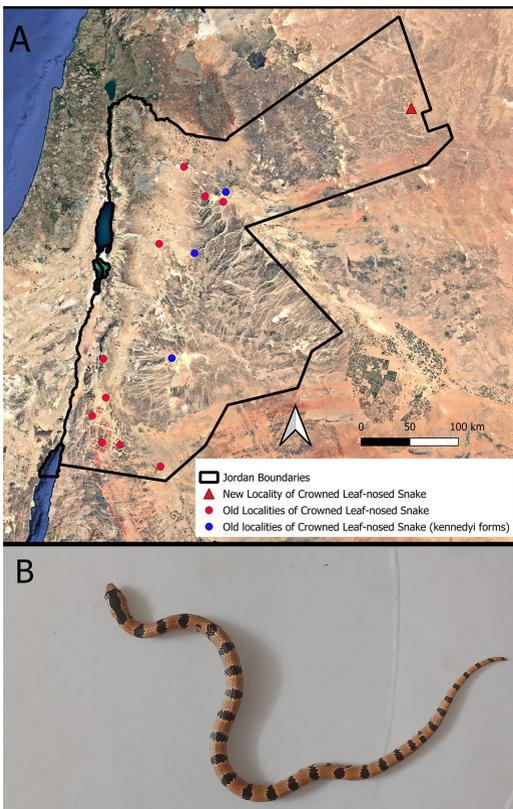


Figure 1. (A) Map of Jordan showing existing localities of *Lytorhynchus diadema*, including the new locality in the country’s far northeast. (B) The captured snake. Photo by Nour El-Deen Badr Abo Al-Bsoul.

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