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SHORT COMMUNICATION

First confirmed records of the Snake-eyed Lizard, *Ophisops elegans* (Squamata: Lacertidae) from Saudi Arabia

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Ophisops elegans Ménériès, 1832 is a widely distributed lacertid species across the east Mediterranean region from southeast Europe to Iran in the east (Sindaco & Jeremčenko, 2008). From a traditional taxonomic perspective, it is considered a polytypic species with several morphologically recognized subspecies (e.g., Uetz et al., 2024). However, results of the recent phylogeographical studies (Kyriazi et al., 2008; Montgelard et al., 2020) challenged this view as the reconstructed patterns do not correspond to the traditional subspecific classification.

The only prior mention of the species' presence in Saudi Arabia is a sight record by Aloufi and Amr (2015), from "Hisma", a sandstone plateau in the northwestern portion of Tabuk Province, close to the border with Jordan. During fieldwork conducted in May 2023 and February 2024, three specimens were observed and photographed at three sites (28.668°N 35.324°E, 28.566°N 35.370°E, and 28.702°N 35.300°E) of the Jebel Al Lawz range, Tabuk Province, Saudi Arabia (Figure 1). Identification of the lizards was performed by L. Pola using a combination of morphological characters given by Arnold (1986), which clearly distinguish *Ophisops* from other lacertid genera occurring in the region (e.g. *Acanthodactylus*, *Mesalina*, or *Phoenicolacerta*): eye being covered by a fused transparent shield; no collar present; and dorsal scales imbricate and strongly keeled.

To gain further insight into the phylogeographical placement of Saudi Arabian *Ophisops* (see Kyriazi et al., 2008), one specimen was caught and a small portion of a tail tip was sampled and stored in 98% ethanol. Genomic DNA was extracted using the DNeasy® Blood & Tissue Kit (Qiagen, Germany) following the manufacturer's instructions. We successfully PCR-amplified and sequenced 16S rRNA (*16S*) using primers 16Sa and 16Sb, as comparative genetic data are currently limited to only three mitochondrial gene fragments (see Kyriazi et al., 2008). We then compared the new sequence with sequences available in GenBank using BLAST. To visualize the phylogeographical structure, we downloaded sequences of *16S* originating from the study of Kyriazi et al. (2008) from GenBank, aligned them with the new sequence, and reconstructed haplotype network using the TCS algorithm (Clement et al., 2000) implemented in PopART (Leigh & Bryant, 2015). MEGA v11 (Tamura et al., 2021) was used to calculate *p*-distances with pairwise deletion.

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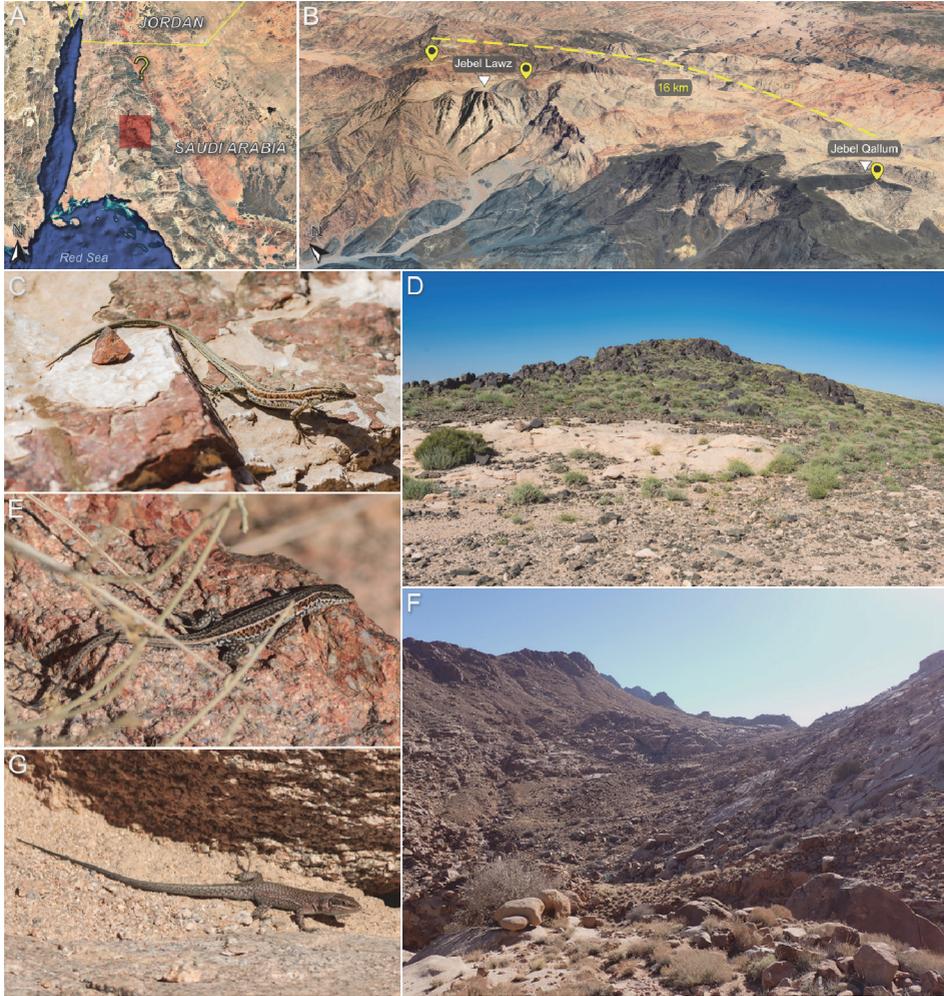


Figure 1. Maps showing the study area within Tabuk Province, Saudi Arabia (A), and the specific record sites within the Jebel Al Lawz range (B). A question mark indicates the sight record by Aloufi and Amr (2015), while three yellow pins mark the records reported in this study. The maps were created using Google Earth Pro and refined in Inkscape. Background imagery: Landsat/Copernicus. Individuals of *Ophisops elegans* (C and E) and habitat, where they were observed (D and F). D. Habitat at Jebel Al Qallum (2,360 m). F. Habitat 2,5 km north-east of Jebel Al Lawz (approx. 1900 m). G. Individual of *Phoenicolacerta kulzeri* observed in sympatry with *O. elegans* in the Jebel Al Lawz range. Photos by BR (E, F and G) and GB (C and D).

Species identification of *Ophisops elegans* from Saudi Arabia was confirmed based on *16S* sequence (GenBank accession number: PQ870403) with BLAST showing 92.5–95.6% sequence similarity to other samples of the species. The reconstructed haplotype network (Figure 2) showed largely country-specific mitochondrial haplotypes, with the exception of Turkey, where, as already shown by Kyriazi et al. (2008), higher haplotype diversity is present. The sample originating from Jebel Al Lawz represents a unique haplotype, differing from the others by 4.5–10.1% (mean 5.6%). This sample

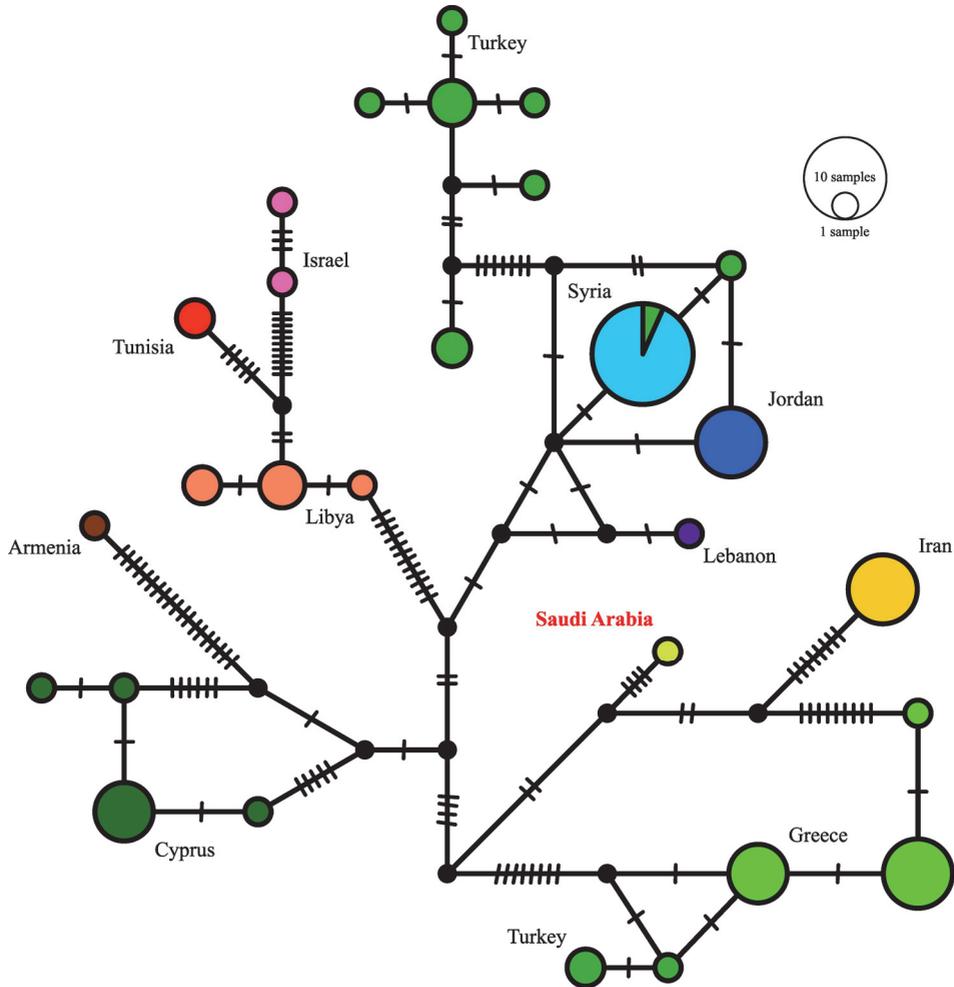


Figure 2. Haplotype network of the 16S rRNA gene fragment (450 bp; 76 sequences). Circle size is proportional to the number of samples that share a given allele. Short transverse bars on the connecting lines indicate the number of mutational steps between alleles. Different colours are used primarily to distinguish mitochondrial haplotypes that are almost exclusively specific to individual countries.

shows a slightly higher similarity, in terms of the number of substitutions, to the samples from Iran than to the geographically closer ones from southern Jordan.

Apart from the record from Hisma mentioned by Aloufi and Amr (2015), located only about 55 km north of the records reported here, the closest known occurrence was reported from the neighbouring Jordan (about 145 km north of the present records), where the species' distribution extends as far south as Ra's an Naqab (30°N, 35.48°E; Disi et al., 2001). To date, there are no records of the species from the area between that village and the Saudi Arabian border to the south in public databases, such as iNaturalist. Additionally, no systematic surveys for the species appear to have been conducted in this region, leaving its presence or absence uncertain. A distribution gap in this area

could potentially account for the genetic disparity observed between these geographically adjacent populations.

The mountains of the Jebel Al Lawz range consist primarily of various granites. Higher elevations are often very difficult to access on account of the steep and rugged nature of the terrain. Boulder and cobble fields are widespread. Due to the elevation, the climate above ca. 1,700 m is markedly different from that of the surrounding hyper-arid deserts below ca. 1,000 m. Snow is a regular feature on the higher peaks in the winter, as are temperatures below 0°C. On account of these unique climatic parameters, the flora of Jebel Al Lawz is characterized by a plethora of species rare in Saudi Arabia, including many Pleistocene relict species of Mediterranean and Irano-Turanian origin, like the wild almond, *Prunus korshinskyi* (Al-Shehri et al., 2020). The vegetation cover across the study area, while generally more extensive than at lower elevations, remains sparse and patchy overall. Tree cover is patchy, and dwarf shrubs, with *Artemisia sieberi* and *Tanacetum sinaicum* the most prominent, account for the bulk of the perennial vegetation. Perennial grasses are a less common constituent of the vegetation. The limited available data suggests that *O. elegans* may be confined to high-elevation mountainous habitats. The whole Jebel Al Lawz range, spreading of about 450 km², comprises other mountains that exceed 1,800 m, and at least 20 peaks whose summits exceed 2,000 m. Parts of the mountain range (e.g. Trojena of the NEOM region) are currently undergoing significant development. The extent to which these activities may contribute to habitat decline or pose a threat to the populations of *Ophisops* remains uncertain. Most notably, *Phoenicolacerta kulzeri* (Lacertidae), globally Endangered (Disi et al., 2006), was observed in sympatry with *O. elegans* at 2.5 km north-east of Jebel Al Lawz (approx. 1900 m a.s.l.; 28.669°N 35.325°E). The regional conservation status of both species should be assessed. In the meantime, conservation measures should be undertaken to ensure the preservation of these species and their habitats before irreversible decline occurs.

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Disclosure Statement

No potential conflict of interest was reported by the authors.

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