

## ON THE CURRENT STATUS OF *OPHIOMORUS LATASTII* BOULENGER, 1887 (REPTILIA: SQUAMATA: SCINCIDAE) IN JORDAN

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**Abstract.**—We provide an updated account on the current status of Lataste’s Snake Skink (*Ophiomorus latastii* Boulenger, 1887) in Jordan. Morphological and ecological characters as well as the updated distribution in the region are presented based on the literature and recent collections. In Jordan, *Ophiomorus latastii* is confined to the northwestern Mediterranean regions and represent the most southern range of this little-known, endemic species.

**Key Words.**—distribution; ecology; Lataste’s skink; morphology

### INTRODUCTION

The genus *Ophiomorus* is irregularly distributed from mainland Greece to western India, with 12 described species so far (Anderson and Leviton 1966; Anderson 1999; Sindaco and Jeremčenko 2008; Kazemi et al. 2011; Speybroeck et al. 2020). It consists of essentially two groups: the smaller western group (i.e., Persian Snake Skink, *Ophiomorus persicus*, Greek Snake Skink, *O. punctatissimus*, Anatolian Limbless Skink, *O. kardesi*, and Lataste’s Snake Skink, *O. latastii*), which have greatly reduced limbs and live in loose soil or beneath rocks, and the larger eastern group, which is associated mainly with sand dunes (i.e., Blanford’s Snake Skink, *Ophiomorus blanfordi*, Three-toed Snake Skink, *O. tridactylus*, and Short-legged Snake Skink, *O. brevipes*; Anderson and Leviton 1966). *Ophiomorus latastii* is considered an endemic species to the eastern Mediterranean basin and it is confined to Jordan, Lebanon, Palestine, and Syria (Günther 1864; Disi et al. 2001; Lymberakis and Kalionzopoulou 2003; Sindaco and Jeremčenko 2008; Werner 2016). The distribution and biology of this cryptic, fossorial skink is poorly known (Modrý et al. 2004; Werner 2016) and its current status in the Red Lists of threatened species of the International Union for Conservation of Nature (IUCN) is Data Deficient (Disi et al. 2006). In this account we present morphological, ecological, and distributional data of *Ophiomorus latastii* specimens collected in the last two decades and discuss its current status in Jordan. These data can be useful for conservation of this rare species with its limited distribution.

### MATERIALS AND METHODS

We made opportunistic collections during field trips made between 2003 and 2021, all specimens are depos-

ited at the Museum, Reptiles Collection of the University of Jordan (JUMR). We also examined and measured all specimens in the collection in addition to previous records (Appendix Table). We also retrieved and examined records of specimens kept at the Yarmouk Museum of Natural History, YMNH (later named Jordan Natural History Museum, JNHM), and the Irbid and European museums. On each lizard, we measured snout-vent length (SVL, mm), tail length (TL, mm), head length (HL, mm), head width (HW, mm), and the number of upper labials (UL), lower labials (LL), transversal dorsal scale rows (DR), and longitudinal dorsal scale rows at midbody (MDR). We examined museum records at the JUMR (JUMR 404, Dayr Abū Sa‘ūd, 1978; JUMR 465, Dayr Abū Sa‘ūd, 1978; JUMR 1381 and JUMR 1467, Umm Al Ḍānānir, 11 April 1983; JUMR 1589, Al‘Āl, June 1983; JUMR 1864–1866, Wādī el Mūjib, 19 February 1988; JUMR 2337 and JUMR 2338, Mādabā, March 1997; JUMR 2506, ‘Īrā, As Salt, November 1997; JUMR 2981, Umm Al Quṭṭayn, February 2003; JUMR 2982, Kafr Asad, June 2019. JUMR 2983, Kafr Abīl, Irbid, December 1996; and JUMR 2984, Ṭabaqat Faḥl, Irbid, December 2021). We also examined materials recorded in other museums (YMNH 217, Wādī al ‘Arab, May 1982; YMNH 604, Irbid, June 1983; YMNH 757, Al Fuḥays, November 1985; JNHM 804, Wādī al ‘Arab, January 1988; BM 1909.8.23.1, Wādī el Hīdān, east of the Dead Sea; NMP6V 71325, 1998, ‘Ammān, leg. D. Modrý; and SMF76962, Wādī el Mūjib, 28 March 1969, leg. J. Klapperich).

### RESULTS

**Description of *Ophiomorus latastii* from Jordan.**—Limbs are absent and the body is slender and elongated with a distinct striped color pattern (Fig. 1). The head is triangular, not distinct from the neck. The average



FIGURE 1. Lataste's Snake Skink (*Ophiomorus latastii*) from Umm Al Quttayn, northeast of Jordan. (Photographed by David Modrý).

head length and head width for Jordanian specimens are  $6.56 \pm 0.29$  (standard error) mm and  $4.08 \pm 0.13$  mm, respectively (Table 1). The snout is acutely conical, with a slight labial edge, the rostral projects beyond lip with no prefrontals, the supranasals are narrowly and in contact and partly separated from one another anteriorly by the apex of the rostral. The eyes are small with

movable eyelids and the lower eyelid has an undivided, transparent disc. The ear openings are minute, situated behind the mouth. The nostrils are small, situated in the suture between the nasal and supranasal. The rostral shield projects beyond the lip. There are six upper labials, five lower labials, and 16–18 scale rows around the middle of the body. There are 110–128 dorsal scales from the parietals to the vent. The average SVL is  $83.75 \pm 3.16$  mm and TL is  $58.6 \pm 7.86$  mm (Table 1).

TABLE 1. Measurements and scale counts in nine specimens of Lataste's Snake Skink (*Ophiomorus latastii*) from Jordan. Museum abbreviations are JUMR = Museum, Reptiles Collection of the University of Jordan and YMNH = Yarmouk Museum of Natural History. The abbreviations of traits are SVL = snout-vent length (mm), TL = tail length (mm), HL = head length (mm), HW = head width (mm), UL = upper labials, LL = lower labials, DR = transversal dorsal scale rows, MDR = longitudinal dorsal scale rows at midbody, and NA = not available.

Museum Number	SVL	TL	HL	HW	UL	LL	DR	MDR
JUMR 2982	85.2	NA	5.2	4.65	6	5	128	18
JUMR 2981	94.2	90.15	5.2	4.65	5	5	118	18
JUMR 1381	79.0	31.1	6.1	4.20	6	5	110	17
JUMR 2337	91.1	31.1	7.1	4.15	6	5	116	17
JUMR 1467	98.9	51.2	7.2	4.15	6	5	116	18
JUMR 2338	88.9	NA	7.4	4.40	6	5	116	18
JUMR 2506	63.8	NA	6.0	3.30	6	5	NA	NA
JUMR 1366	72.6	59.9	6.1	4.15	6	5	106	18
JUMR 1865	82.2	NA	7.6	4.80	6	5	115	17
JUMR 2983	90.0	79.5	7.7	4.10	6	5	115	16
JUMR 2984	89.4	77.4	7.6	4.00	6	5	114	16
JUMR 2985	59.7	48.5	4.4	3.11	6	5	118	18
YMNH 217	80.1	NA	7.5	3.80	6	5	110	17
YMNH 757	97.5	NA	6.8	3.70	6	5	121	18

**Coloration.**—The ground color is greyish to pale brownish above (cream in preservative) and the ventral side is pale whitish. Each scale of the body and tail has a more or less distinct dark brown spot, which are more or less confluent, forming longitudinal dark lines (stripes) on the dorsum, sides, and belly running through the length of the body and tail. There are 16 stripes on the anterior part of the body (10 continuous and six dotted), and as the body narrows down, they become 14 at mid body (10 continuous and four dotted), and 10 (all continuous stripes) around the tail (Fig. 2). There are two medial, longitudinal, narrow stripes on the dorsum and two more distinct stripes on either side that are much broader than those on the dorsum. These stripes start from the nostrils through the eyes and continue caudally through the lateral sides of the body and tail (where they each divide into two narrow stripes). There are lines of discrete brown dots on the entire ventral surface and a brown line from the rostral through the eye and temporal region, becoming confluent with the two broad lateral stripes. The lips and top of the head have scattered brown dots. The recorded description and measurements resemble that of specimens from the region and fall within the range of previously reported specimens (pers. obs).

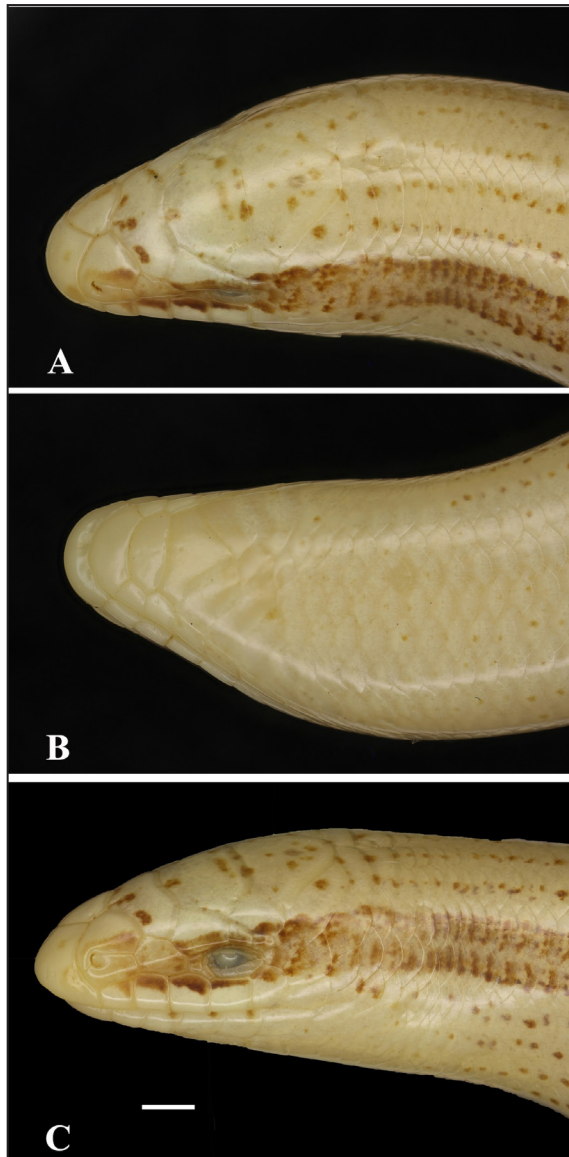


FIGURE 2. (A) Dorsal, (B) ventral, and (C) lateral views of the head of Lataste's Snake Skink (*Ophiomorus latastii*) from Umm Al Quttayn, northeast of Jordan (JUMR 2981). Scale = 1 mm. (Photographed by Ahmad Katbeh).

**Distribution in the eastern Mediterranean.**—There are 42 known localities for *Ophiomorus latastii* in the eastern Mediterranean (Fig. 3). This species was reported from three localities in Syria: the southwestern border of the Golan (Sivan and Werner 1992); Assawara Assogra (Almasri 2000); and from Buraq (Lymberakis and Kalionzopoulou 2003). So far, a single specimen has been recorded from Mt. Hermon, Lebanon (Günther 1864). Werner (2016) gave several localities for this species in Palestine/Israel, extending from the north reaching as far as Lahav, at the southern end of the West Bank. In Jordan, the range extends from the north

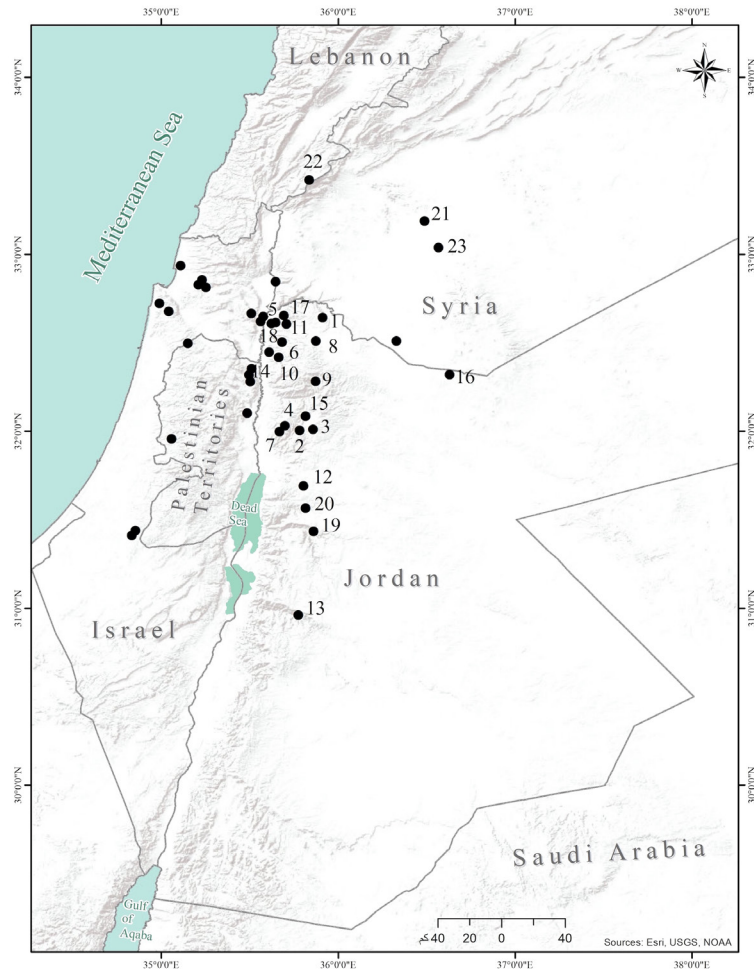
reaching as far as the southern end of the Dead Sea (Anderson and Leviton 1966; Disi et al. 2001, 2004; Disi 2002).

**Habitat and ecology.**—*Ophiomorus latastii* occurs in the steppe and forest habitats of Mediterranean ecozone (Disi et al. 2001). In Jordan, it was collected from the Jordan Valley and the Mediterranean ecozone (Disi and Amr 1998), in addition to one record from Umm Al Quttayn within the Irano-Turanian basalt desert at an elevation of about 1,100 m. We found specimens on open slopes, with scattered vegetation and relatively medium to large sized stones. The species inhabits areas where humidity is high around Wādī el Hīdān, Wādī Al-Mujīb and Sail al Ḥasā. We collected lizards from under stones with *terra rossa* (reddish, clayey) and soft calcareous soils. *Ophiomorus latastii* is diurnal and we observed them emerging from under stones or taking shelter under medium sized rocks. During hot seasons, it remains buried or in burrows in loose soil and we rarely saw them on the surface. We did not find any food remains in the preserved specimens. Other reptiles associated with the habitats of *Ophiomorus latastii* (Disi et al. 2001) include Rueppell's Snake-eyed Skink (*Ablepharus rueppellii*), Large Whip Snake (*Dolichophis jugularis*), European Glass Lizard (*Pseudopus apodus*), Levant Fan-fingered Gecko (*Ptyodactylus puiseuxi*), Common Chameleon (*Chamaeleo chamaeleon*), Lebanon Lizard (*Phoenicolacerta laevis*), Green Lizard (*Lacerta media*), Snake-eyed Lizard (*Ophisops elegans*), Günther's Cylindrical Skink (*Chalcides guentheri*), Starred Agama (*Stellagama stellio*), Worm Snake (*Typhlops vermicularis*), Sand Boa (*Eryx jaculus*), Coin-Marked Snake (*Hemorrhois nummifer*), Collared Dwarf Racer (*Platyceps collaris*), Narrow-Striped Dwarf Snake (*Eirenis decemlineatus*), Striped Dwarf Snake (*Eirenis lineomaculatus*), Roth's Dwarf Racer (*Eirenis rothi*), Müller's Black-headed Snake (*Micrelaps muelleri*), and Palestine Viper (*Daboia palaestinae*).

**Conservation.**—So far, no regional or national assessment is available for this species. The threats to this species are not well known in the region (Disi et al. 2006). It is locally threatened in northern Jordan by the intensification of agricultural activities. Threats that can affect its populations in Jordan include agricultural and urban expansion in the Mediterranean habitats that result in habitat loss and/or degradation (Disi et al. 2014).

#### DISCUSSION

Jordan represents the most southern range of distribution for *O. latastii*. It reaches as far as Sail al Ḥasā basin east of the Dead Sea. Additionally, Jordan represents its most easternmost distribution range in



**FIGURE 3.** The current known distribution of Lataste's Snake Skink (*Ophiomorus latastii*) in the eastern Mediterranean. Numbers refer to locations listed in the Appendix Table.

Umm Al Quţţayn. This locality is part of Jabal Al Arab (in Syria), with an elevation reaching 1,100 m. The scarcity of materials from Syria and Lebanon constitutes a gap in its distribution in the Middle East. We did not come across additional records for this species from Lebanon (Zinner 1967; Hraoui-Bloquet et al. 2002). Werner (2016) stated that populations of *O. latastii* in Palestine are localized, isolated, and far apart.

Greer and Wilson (2001) confirmed that the western group of *Ophiomorus* is paraphyletic, while the eastern group is monophyletic based on cladistic analysis of 26 characters. They also stated that *O. latastii* is different from other species of the genus *Ophiomorus* in exhibiting truncation in both the snout and neck. Anderson and Leviton (1966) stated that *O. latastii* is the most specialized species of the genus *Ophiomorus* regarding the head shields and the least in terms of color pattern in that each scale of the body has a dark marking, confluent as longitudinal stripes on all scale rows

except on the belly, where they form lines of discrete dots. Poulakakis et al. (2008) found that the genetic distance between the Greek Snake Skink (*Ophiomorus punctatissimus*) and *O. latastii* collected from Syria is 18.5% for cyt b and 9.0% for 12S, and both are sister taxa according to phylogenetic analyses. Very little is known about *Ophiomorus latastii* due to its secretive fossorial lifestyle (Modrý et al. 2004), thus further studies on the biology (e.g., reproduction and diet analysis) of this species are needed. Also, phylogenetic studies to demonstrate its relationship to other species in Europe and Southwest Asia have not been made and would help elucidate its evolutionary history.

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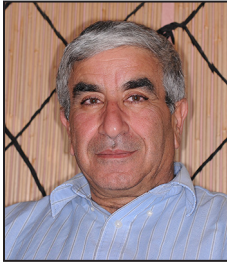
## LITERATURE CITED

- Almasri, A. 2000. A primary survey of lizards at Jabal El-Arab (south of Syria). Man and the Biosphere (MAB) Programme Technical Report, The United Nations Educational, Scientific and Cultural Organization (UNESCO), Damascus, Syria. 44 p.
- Anderson, S.C. 1999. The Lizards of Iran. Society for the Study of Amphibians and Reptiles Contributions to Herpetology 15:1–442.
- Anderson, S.C., and A.E. Leviton. 1966. A review of the genus *Ophiomorus* (Sauria: Scincidae), with descriptions of three new forms. Proceedings of the California Academy of Science 16:499–534.
- Boulenger, G.A. 1887. Catalogue of the lizards in the British Museum (Nat. Hist.) III. Lacertidae, Gerrhosauridae, Scincidae, Anelytropsidae, Dibamidae, Chamaeleontidae. Natural History Museum (London) Publications, London, UK. 575 p.
- Disi, A.M. 2002. Jordan country study on biological diversity: the herpetofauna of Jordan. The General Corporation for the Environment Protection, Amman, Jordan. 288 p.
- Disi, A.M., and Z.S. Amr. 1998. Distribution and ecology of lizards in Jordan (Reptilia: Sauria). Pp. 43–66 *In* Beiträge zu einer Herpetofauna Arabica – Faunistische Abhandlungen, Staatliches Museum für Tierkunde Dresden. Fritz, U, F.J. Obst, and B. Andreas (Eds.). Supplement 6, Contributions to a Herpetologia Arabica, Dresden, Germany.
- Disi, A.M., Z.S. Amr, and N. Hamidan. 2014. Diversity, threats, and conservation of the terrestrial and freshwater herpetofauna of Jordan. Russian Journal of Herpetology 21:221–233.
- Disi, A., Z.S. Amr, and H. Martens. 2004. On the collection of amphibians and reptiles made by Mr. J. Klapperich from Jordan. Herpetozoa 16:141–150.
- Disi, A.M., D. Modrý, P. Necas, and L. Rifai. 2001. Amphibians and Reptiles of the Hashemite Kingdom of Jordan. An Atlas and Field Guide. Edition Chimaira, Frankfurt am Main, Germany. 408 p.
- Disi, A.M., Y. Werner, P.A. Crochet, S. Hraoui-Bloquet, and R. Sadek. 2006. *Ophiomorus latastii*. International Union for Conservation of Nature Red List of Threatened Species. www.iucnredlist.org.
- Greer, A.E., and G.D.F. Wilson. 2001. Comments on the scincid lizard genus *Ophiomorus*, with a cladistic analysis of the species. Hamadryad 26:261–271.
- Günther, A. 1864. Report on a collection of reptiles and fishes from Palestine. Proceedings of the Zoological Society of London 1864:488–493.
- Hraoui-Bloquet, S., R.A. Sadek, R. Sindaco, and A. Venchi. 2002. The herpetofauna of Lebanon: new data on distribution. Zoology in the Middle East 27:35–46.
- Kazemi, S.M., M.F. Qomi, H.G. Kami, and S.C. Anderson. 2011. A new species of *Ophiomorus* (Squamata: Scincidae) from Maranjab Desert, Isfahan Province, Iran, with a revised key to the genus. Amphibian & Reptile Conservation 5:23–33.
- Lymberakis, P., and A. Kalionzopoulou. 2003. Additions to the herpetofauna of Syria. Zoology in the Middle East 29:33–39.
- Modrý, D., L. Rifai, M.A. Abu Baker, and Z. Amr. 2004. Amphibians and reptiles of the Hashemite Kingdom of Jordan. Denisia 14:407–420.
- Poulakakis, N., V. Pakaki, M. Mylonas, and P. Lymberakis. 2008. Molecular phylogeny of the Greek legless skink *Ophiomorus punctatissimus* (Squamata: Scincidae). The impact of the Mid-Aegean trench in its phylogeography. Molecular Phylogenetics and Evolution 47:396–402.
- Sindaco, R., and V.K. Jeremčenko. 2008. The Reptiles of the Western Palearctic. Edizioni Belvedere, Latina, Italy. 579 p.
- Sivan, N., and Y.L. Werner. 1992. Survey of the reptiles of the Golan Plateau and Mt. Hermon, Israel. Israel Journal of Zoology 37:193–211.
- Speybroeck, J., W. Beukema, C. Dufresnes, U. Fritz, D. Jablonski, P. Lymberakis, I. Martínez-Solano, E. Razzetti, M. Vamberger, M. Vences, et al. 2020. Species list of the European herpetofauna - 2020 update by the Taxonomic Committee of the Societas Europaea Herpetologica. Amphibia-Reptilia 41:139–189.
- Werner, Y.L. 2016. Reptile Life in the Land of Israel. Edition Chimaira, Frankfurt am Main, Germany. 494 p.
- Zinner, H. 1967. Herpetological collection trips to the Lebanon 1965 and 1966. Israel Journal of Zoology 16:49–58.

Abu Baker and Amr.—*Ophiomorus latastii* Boulenger, 1887 in Jordan.



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**APPENDIX TABLE.** Decimal latitude and longitude coordinates of localities of Lataste's Snake Skink (*Ophiomorus latastii*) from Jordan and Syria shown in Figure 3 and in the text.

	Locality	North	East
1	Al' Āl	32.64144	35.91106
2	Al Fuḥayṣ	32.00468	35.78088
3	Ammān	32.00947	35.85763
4	As Salt	32.03019	35.69871
5	Ash Shūnah ash Shamālīyah	32.60883	35.62284
6	Dayr Abū Sa'īd	32.50294	35.68263
7	'Īrā	31.99640	35.66778
8	Irbid	32.50921	35.87397
9	Jarash	32.28160	35.87210
10	Kafr Abīl	32.41736	35.66276
11	Kufr Asad	32.60596	35.70744
12	Mādabā	31.69125	35.80334
13	Sail al Ḥasā	30.96066	35.77382
14	Ṭabaqat Faḥl	32.44603	35.60988
15	Umm Al Ḍānānir	32.08521	35.81570
16	Umm al Quṭṭayn	32.31934	36.62895
17	Umm Qays	32.65332	35.69230
18	Wādī al 'Arab	32.61463	35.64627
19	Wādī Al-Mujib	31.43461	35.85995
20	Wādī el Hīdān	31.56580	35.81532
21	Buraq	33.18773	36.48815
22	Mt. Hermon	33.41878	35.83545
23	As Sawara As Sughra	33.03773	36.56618