

Reptile observations in Yemen*, spring 1993

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Yemen has a rich reptilian fauna comprising about 80 terrestrial species (excluding those occurring on the Socotra archipelago), five species of marine turtle and one sea-snake. Many of the terrestrial species are endemic to the Arabian peninsula and arid regions immediately to the north. Several species are endemic within this region to southern Arabia which encompasses the highlands of south-west Saudi Arabia, Yemen northwards to the southern edge of the Rub' al-Khali and the Mahrah region of eastern Yemen and Dhofar, Oman.

The terrestrial reptile fauna of Yemen may be broadly summarised as follows: (numbers in parentheses refer to the number of species endemic to the Arabian peninsula/number of species endemic to southern Arabia i.e. Yemen, south-west Saudi Arabia and Dhofar.)

Testudinidae:	Tortoises: 1 species	(0/0)
Pelomedusidae:	Side-necked terrapins: 1 species	(0/0)
Agamidae:	Agamid lizards: 9 species	(7/3)
Chamaeleonidae:	Chameleons: 3 species	(2/2)
Gekkonidae:	Geckos: 25 species	(15/8)
Lacertidae:	Lacertid lizards: 11 species	(9/6)
Scincidae:	Skinks: 7 Species	(4/0)
Varanidae:	Monitors: 3 species	(1/1)
Trogonophidae:	Amphisbaenians: 1 species	(1/1)
Serpentes:	Snakes: 20 (up to 28) species	(7/4)

During the OSME survey of spring 1993 a total of 42 species of reptile was recorded: one terrapin, three marine turtles, six agamid lizards, two chameleons, 15 geckos, four lacertid lizards, five skinks, one monitor and five species of snake. Details are presented below.

Species endemic or near-endemic to Arabia are indicated with a single asterisk; those endemic to Yemen are indicated with two asterisks.

ORDER CHELONIA Terrapins, marine turtles and tortoises

One species of freshwater terrapin *Pelomedusa subrufa* occurs in Yemen. The status of the tortoise *Geochelone sulcata*, an African species, is uncertain in Yemen.

Five species of marine turtle: *Caretta caretta*, *Chelonia mydas*, *Eretmochelys imbricata*, *Lepidochelys olivacea* and *Dermochelys coriacea* have been recorded around the Yemeni coast and *C. mydas* is known to breed.

* N.B. this paper includes records from the entire Republic of Yemen and not just southern Yemen.

Family Pelomedusidae Side-necked terrapins**Helmeted Terrapin *Pelomedusa subrufa***

1 19 March, Ta' izz lagoons, 13°34'N 44°01'E, 1,150 m. Two, one basking on floating mat of dead vegetation, another resting just below water surface with only the nostrils protruding.

2 27 March, Wadi al-Jahr, 13°58' N 46°23' E, 600 m. Two basking on boulders in flowing wadi.

Distribution and comments: In Arabia, this species is confined to the extreme south-west in south-west Saudi Arabia and western Yemen. The survey record from Wadi al-Jahr may represent an eastward range extension in Yemen. *P. subrufa* also occurs over much of sub-Saharan Africa and in Madagascar. This species is able to aestivate in drought conditions.

Family Cheloniidae Marine turtles**Loggerhead Turtle *Caretta caretta gigas***

1 16 April, al-Mukha (Red Sea Coast), 13°18'N 43°15'E. At least four adults observed close inshore, some holding their heads vertically above the water surface for several seconds.

2 23 April, Sayhut, 15°14'N 51°17'E. At least four offshore, with several more in vicinity and along the coast to the east.

Distribution and comments: This species is widely distributed in tropical and sub-tropical waters in the Indian Ocean (and also the Mediterranean, Pacific and Atlantic). There are some major nesting beaches on islands off the Arabian coast.

Green Turtle *Chelonia mydas japonica*

Encountered frequently from al-Mukha on the Red Sea coast eastwards along the southern Yemen coastline almost to the Omani border. In the vicinity of al-Fatk, 16°31'N 52°42'E, approximately 400 recent nests, probably of this species, were counted on beaches.

Distribution and comments: Widespread in tropical and sub-tropical waters of the Indian Ocean (and also the Mediterranean, Pacific and Atlantic). Known to nest on the southern Yemen coast in significant numbers.

Hawksbill Turtle *Eretmochelys imbricata bissa*

1 16 April, al-Mukha. Small dead specimen on beach, carapace 30 cm; cause of death not apparent.

2 22 April, al-Hami, 14°49'N 49°50'E. At least two 50 m offshore.

3 23 April, Sayhut. Two close inshore.

Distribution and comments: Widespread in tropical and sub-tropical waters of the Indian Ocean (and also in the Pacific and Atlantic).

ORDER SQUAMATA Lizards and snakes

Sub-order Sauria Lizards

About 58 species of lizard and 1 amphisbaenian have been recorded on mainland Yemen although the taxonomic status of some is uncertain. During the survey 33 species were recorded. Two species whose identification was not positively ascertained are indicated with a question mark.

Family Agamidae Agamid lizards

**Pseudotrapelus adramitanus*

Recorded at many localities in the west Yemen highlands but in many cases individuals were not differentiated from *P. yemenensis*. Also observed at Wadi Mararah (the Mahrah), 16°39'N 52°55'E, 360 m.

Distribution and comments: Endemic to western and southern Arabia from Taif (Saudi Arabia) to Aden (Yemen) and east to Dhofar (Oman). Usually occurs below 2,000 m.

*Yemen Agama *Pseudotrapelus yemenensis*

Several observations in the vicinity of Sana'a and also at the Central Highland Research Station near Dhamar, at an altitude of 2,400 m.

Distribution and comments: Endemic to the highlands of western Yemen and south-west Saudi Arabia where it usually occurs above 2,000 m.

Pseudotrapelus sinaitus

1 19 April, four observed at Wadi Harim near Am Nabiya, approximately 12°48'N 43°41'E, 100 m.

2 20 April, Ras al-'Arah, 12°40'N 43°53'E, 50 m. One observed lying flat on stony ground in 'camouflage posture'. When handled, head colouration turned from a buffy-brown to blue.

3 1-2 May, numerous observations on the desert crossing between al-Ghaydah 16°13'N 52°11'E westwards to the vicinity of Fughmah 16°10'N 49°27'E, up to 875 m.

Distribution and comments: Widespread in Arabia (absent from the Rub' al-Khali) north to Palestine and Jordan, also Egypt and south-east Libya. During the survey this species was observed from almost the southern tip of the Arabian Peninsula near Wadi Harim eastwards to al-Ghaydah. Probably widespread throughout the country in the lowlands below 1,000 m. In sandy desert areas restricted to localities with at least some outcrops of rock and scattered boulders, providing look-out points and refuges.

*Arabian Toad-headed Agama *Phrynocephalus arabicus*

1 5 May, al-Mudhur, 15°49'N 48°25'E, 790 m. Two observed in abandoned fallow sandy fields with some patches of low xerophytic vegetation.

2 6 May, 10 km north-west of 'Arayn and Turbaq hills, 15°44'N 46°36'E, 1,000 m. Three, including one tail-signaling male, on mobile sand dunes with fresh growth of feather-grass *Stipa* sp.

Distribution and comments: Endemic to the Arabian peninsula where it is widespread except in the west. The survey record from al-Mudhur is close to the type locality on the Plateau of the Hadramawt.

Small-grain or Desert Spiny-tailed Lizard *Uromastyx aegyptius microlepis

1 2 May, 230 km W of al-Ghaydah, 790 m. One taking refuge in burrow on almost flat limestone rubble in hamada desert with very sparse vegetation cover, mostly of low mats of xerophytic shrubs but with a few small *Acacia* trees.

(*Uromastyx* sp. was seen retreating down its burrow on 1 May 61-84 km west of al-Ghaydah, 16°13'N 51°35'E. The habitat would suggest that this was *U. aegyptius microlepis*).

Distribution and comments: This species is widespread in Arabia north to Jordan and Iraq and east to Iran. The tail of *Uromastyx* is used for fat storage; they are sometimes caught and eaten as a traditional delicacy by local people.

****Yemen Spiny-tailed Lizard *Uromastyx benti***

1 24 April, Ras 'Uqab (12 km east of Sayhut), 15°15'N 51°20'E. One basking on rock about 50 m from shoreline.

2 30 April, Shahrut (west of Damqawt), 16°33'N 52°46'E, 10 m. One basking on large boulder pile; took refuge in rock crevice when approached.

3 2 May, 5 km east of Fughmah, 16°10'N 49°27'E, 70 m. Piece of desiccated tail found among rocks on edge of steep-sided rocky wadi.

4 3 May, al-Ghurfa, 15°50'N 48°45'E, 780 m. One immature 'wedged' in crevice in boulder in rocky wadi bed.

Distribution and comments: Known only from eastern Yemen. Survey records suggest that this species inhabits very rocky arid areas in both coastal and inland localities.

Family Chamaeleonidae Chameleons

Arabian Chameleon *Chamaeleo arabicus

1 25 April, Saqr, 15°32'N 51°56'E, 5 m. One in scrub in irrigated agricultural strip along the coast with *Sorghum* fields and small date palm *Phoenix dactylifera* groves.

2 28 April, Wadi Mararah. Desiccated head found.

Distribution and comments: Endemic to southern Yemen and Dhofar. The survey record from Saqr is from a new but not unexpected locality.

Yemen or Duméril's Chameleon *Chamaeleo calyptratus calyptratus

1 9 March, Ta' izz lagoons. One male climbing into dense cover.

Distribution and comments: Endemic to the south-west Arabia. The subspecies *C. c. calyptratus* is restricted to west Yemen; the survey record falls within the known range.

Family Gekkonidae Geckos**Bunopus spatularus spatularus*

1 27 March, Yashbum/Wadi Habban, 14°19.63'N 46°59.04'E, 1,200 m. One spot-lighted at night (21.00 hrs) on bare rocks in dry wadi bed.

Distribution and comments: Endemic to Arabia where known from Yemen, Oman, UAE and central Saudi Arabia.

Bunopus tuberculatus

1 5 May, 3 km west of Shabwah, 15°23'N 47°01'E, 800 m. One spot-lighted at night (20.00 hrs) on loose sand/gravel substrate with small scattered hummocks of xerophytic vegetation and occasional *Acacia* trees.

Distribution and comments: Widespread in Arabia north to Syria and east to Pakistan.

Yellow-bellied House Gecko *Hemidactylus flaviviridis*

1 16 April, Bajil, 15°04'N 43°17'E, 250 m. One on house wall at night.

Distribution and comments: In Arabia found mainly in coastal areas. It also occurs in coastal north-east Africa and east to northern India. Considered a house gecko in the western part of range.

Hemidactylus turcicus

Identified from photographs taken in the vicinity of Sana'a.

Distribution and comments: Widespread in peripheral Arabia east to Pakistan, in coastal areas fringing the Mediterranean and Red Sea and north-east Africa south to Somalia.

Hemidactylus yerburii

1 27 April, Wadi Mararah. Two at night on boulders by small flowing stream with some marginal herbaceous vegetation.

Distribution and comments: Occurs in southern Arabia from south-western Saudi Arabia ('Asir) and Yemen east to southern Oman, also Somalia.

****Collared Semaphore Gecko *Pristurus collaris***

Recorded at 10 localities, the most westerly at al-Shihr, 14°46'N 49°36'E to as far east as 10 km west of Wadi Mararah, at altitudes from just above sea-level up to 760 m in the hills inland from Qishn 15°25'N 51°41'E.

Distribution and comments: A Yemen endemic previously known from Bal Haf to Ras Fartak and inland to the Hadramawt. The survey record from near Wadi Mararah extends the known range, being about 150 km north-east of Ras Fartak. This species appeared abundant in these localities and was observed to be both diurnal and nocturnal.

Semaphore Gecko *Pristurus crucifer*

1 20 April, Ras al-'Arah. Several observed running across gravel substrate with

sparse vegetation cover of low xerophytic plants in *Acacia* savanna. Sympatric with *P. ornithocephalus* and the mainly arboreal *P. flavipunctatus*.

Distribution and comments: In Arabia restricted to the west and south-west coasts of Yemen. Elsewhere occurs in Somalia and extreme northern Kenya. The survey record falls within known range.

Semaphore Gecko *Pristurus flavipunctatus*

1 22 March, Jabal Iraf, 13°07.02'N 44°15.31'E, 1,400 m. Two seen on a *Juniperus* sp. trunk in open Juniper woodland with some *Acacia* and other tree species.

2 20 April, Ras al-'Arah. Two in the small branches of an *Acacia* 2 m from the ground and one at the base of a small *Acacia* tree in *Acacia* savanna with a gravel/stone substrate.

Distribution and comments: In Arabia occurs in the coastal Tihamah of south-west Saudi Arabia and Yemen. Also occurs in north-east Africa. The survey records fall within known range. Unlike most other semaphore geckos, this is usually an arboreal species.

*Small Semaphore Gecko *Pristurus minimus*

1 26 April, al-Faydami plain, 16°25'N 52°28'E, 10 m. At least 10 at dusk on loose sand and especially among or near to small hummocks of woody, xerophytic vegetation.

Distribution and comments: The first record for Yemen. Also known from Oman and recently recorded in south-west Saudi Arabia.

**Bird-headed Semaphore Gecko *Pristurus ornithocephalus*

1 28 March, Bir 'Ali, 14°0.50'N 48°19.50'E, 20 m. One on basaltic rocks approximately 300 m from coastline. 'Played dead' for almost one minute when caught and handled (such behaviour may be stress induced) before swiftly running off.

2 29 March, Wadi Hajr, 14°05.66'N 44°41.33'E. One on an arid plain with both sandy and rocky areas and scattered tussocks of xerophytic vegetation.

3 19 April, Ras al-'Arah. One female at dusk (18.15 hrs) on a gravel plain in *Acacia* savanna.

Distribution and comments: Endemic to coastal south-west Yemen. The survey records fall within the known range.

Common Semaphore Gecko *Pristurus rupestris*

Recorded through the west Yemen highlands at altitudes up to 2,400 m near Dhamar 14°39'N 44°21'E, down to 600 m at Wadi al-Jahr. The most easterly record was from Yashbum/Wadi Habban.

Distribution and comments: Found around the periphery of Arabia and in Djibouti, northern Somalia and Ethiopia and coastal Iran, possibly also in Pakistan. A common species of rocky areas in the Yemen highlands.

Ptyodactylus hasselquistii

Recorded at nine localities from Jabal Iraf in the west and al-Ghurfa (15 km

south-east of Tarim) in the east; from 600 m to 2,000 m. Often heard calling at dusk.

Distribution and comments: Widespread in Arabia, probably north to Palestine, Syria and Iraq and south-west Iran; also in North Africa. A common species in rocky areas; also observed on the walls of buildings (at Tarim).

**Stenodactylus doriae*

Recorded at up to seven localities; along the coast between Wadi Hajr eastwards to Saqr and inland to Wadi Sh'hout 16°20'N 50°43'E and Shabwah 15°23'N 47°01'E, at altitudes from just above sea-level to 800 m.

Distribution and comments: Widespread in Arabia east to south-west Iran. All survey observations were in areas of loose sand except at Wadi Sh'hout where the substrate was compacted limestone dust. At this locality a positive identification was not made and the species observed could have been *S. doriae*, *S. slevini* or *S. leptocosymbotes*.

**Stenodactylus yemenensis*

1 Wadi al-Khabt (Tihamah), 13°03.47'N 44°23.80'E, 460 m. One spot-lighted at night walking across bare, loose sand.

Distribution and comments: Endemic to south-west Arabia, occurring in coastal western Yemen and south-western Saudi Arabia.

**Tropicolotes scorteccii*

1 24 April, hills inland from Ras Sharwayn, 15°24'N 51°35'E, 700 m. One under a loose rock on the summit of a bare hill covered in fragmented slabs of limestone.

Distribution and comments: Known only from the Hadramawt region and Dhofar. This is a remarkably tiny species, not exceeding 40 mm in length (from snout to vent).

Family Lacertidae Lacertid lizards

****Yemen Spiny-footed Lizard *Acanthodactylus arabicus***

Observed at several localities from Wadi al-Khabt, 13°04.62'N 44°21.85'E, in the west, eastwards to al-Shihr, 14°44'N 49°35'E, at altitudes from just above sea-level to 460 m.

Distribution and comments: Endemic to the Red Sea coast of western Yemen eastwards along the south coast to Qishn. Immatures have a bright green tail which is constantly wriggled when at rest, this is perhaps a distraction display to potential predators.

Spiny-footed Lizard *Acanthodactylus boskianus*

1 8 April, Wadi Himarah, 14°03'N 46°53'E, 625 m.

2 27 April, al-Faydami plain, 16°25'N 52°28'E, 10 m.

3 3 May, al-Sawm, 16°08'N 49°14'E, 800 m. One caught, length: snout-vent = 79

mm, tail = 165 mm; 10 ventrals, 26 dorsals (12 large dorsals, 7 smaller laterals on either flank).

4 4 May, Sayun, 15°56'N 48°50'E, 830 m.

5 5 May, al-Mudhur (Hadramawt).

Distribution and comments: Widespread in Arabia north to south-east Turkey; also in North Africa. Survey observations suggest this is a common and widespread species at low to moderate altitudes. It inhabits sandy/gravelly areas with at least some vegetation, sometimes occurring in cultivated fields with sparse crop cover. Undoubtedly encountered at more localities than indicated above but possible confusion with *A. felicitis/yemenicus* could not be eliminated on many occasions.

Spiny-footed Lizard *Acanthodactylus opheodurus

1 5 May, al-Mudhur (Hadramawt). At least ten immatures and three adults.

Distribution and comments: Widespread in Arabia north to Palestine, Jordan and Iraq. Immatures of this species are characterised by a reddish tail, which as with *A. arabicus* is almost constantly wriggled when at rest.

****Mesalina adramitana* ?**

1 2 May, 250 km west of al-Ghaydah, 16°15'N 51°08'E, 670 m. Three *Mesalina* lizards observed on the ground in areas of palmetto (dwarf fan palm) were probably this species.

Distribution and comments: Known from eastern Yemen, Oman, UAE, Qatar and south-east Saudi Arabia. The type locality is in the Hadramawt and the survey record falls within the known range.

Family Scincidae Skinks

Ocellated Skink *Chalcides ocellatus*

1 29 March, Wadi Hajr. One in *Acacia* undergrowth; retreated down burrow when disturbed.

2 7 April, Wadi Hajr (4 km north of road), 14°07'N 48°42'E, 30 m. One on an embankment alongside an irrigation ditch and *Sorghum* field; retreated down burrow when disturbed.

Distribution and comments: Occurs in North Africa, parts of Mediterranean Europe and Asia Minor east to Pakistan. In Arabia found mainly at coastal localities, especially in cultivated areas where the ground is often damp. This was the habitat at Wadi Hajr.

Skink *Mabuya brevicollis*

1 28-29 April, Wadi Mararah. Several amongst leaf-litter in dry scrub and one basking on a rock at 07.00 hrs.

Distribution and comments: Occurs in north-east Africa and peripheral Arabia from Taif (Saudi Arabia) to Dhofar, eastern UAE and coastal Pakistan.

Skink *Mabuya tessellata

1 23 March, Jabal Iraf. Two skinks approximately 15-20 cm in total length with bronzy-buff dorsum, slightly more rufous tail and dark line running from nostril through eye, ending above forelimb, observed on boulders. A positive identification was not made but it was probably this species.

2 2 May, 5 km east of Fughmah, 16°10'N 49°27'E, 670 m. One immature found dead under rock.

Distribution and comments: Endemic to southern Arabia, occurring in Yemen, Dhofar and northern Oman.

Sand Skink *Scincus mitranus

1 28 March, Wadi Hajr. Desiccated head and left forefoot found on sand dune.

2 29 March, Wadi Hajr. Desiccated body (with tail missing) found on sand dune.

Distribution and comments: Widespread in south and east Saudi Arabia, eastern Yemen, Oman and the Gulf States.

***Sand Skink *Scincus scincus*?**

1 22 April, Wadi al-Masilah, 15°14'N 51°08'E, approximately 50 m. One moving across loose sand. An attempt to catch it caused it to dive rapidly beneath the surface of the sand. It could not be re-located. Pale buff dorsum, orange flanks and an apparent rounded snout were noted. A positive identification was not made.

Distribution and comments: *S. scincus* occurs throughout most of the Arabian Peninsular and in Iraq and south-west Iran. In Yemen the sub-species *S. s. conirostris* is known from the Hadramawt.

Family Varanidae Monitor lizards**Desert Monitor *Varanus griseus***

1 20 April, near Qa'wah, 12°42'N 44°25'E, 50 m. One immature approximately 60cm in length running off swiftly across sand and taking refuge in a burrow when disturbed.

2 22 April, Wadi al-Masilah. One on sand dunes with scattered stands of *Calotropis procera*.

3 1 May, 61 km west of al-Ghaydah, 16°13'N 51°35'E, 260 m. One adult observed retreating down a burrow when approached.

4 5 May, 2 km east of al-Mudhur (Hadramawt). One immature in habitat consisting of flat, sandy, dry fields with scattered low xerophytic shrubs.

5 6 May, 10 km south-west of wadi at Shabwah, 15°22'N 47°E, 800 m. One adult running rapidly across sand dunes.

Distribution and comments: Widespread in Arabia; also occurs in north Africa and south-west Asia. In Yemen they are sometimes caught locally by Bedu tribes-people for food.

All localities were arid, fairly flat, sandy and sparsely vegetated.

Sub-order Serpentes Snakes

Twenty-eight species of snake have been recorded on mainland Yemen (plus one species of sea-snake). However, the validity of the occurrence of seven of these needs confirmation as specimens may have been wrongly identified or localities where they were collected may be erroneous.

During the survey five species were identified. Several other snakes were also observed but poor views prevented a positive identification being made.

Family Colubridae Typical snakes**Jan's Desert Racer, Jan's Cliff Racer *Coluber rhodorachis rhodorachis***

1 26 March, Wadi al-Jahr. One immature found trapped in an empty oil drum sunk into the ground (presumably an old fire-place/oven).

Range and comments: Widespread in Arabia in montane rocky areas. Also occurs from Libya east to Pakistan and northern India. A diurnal or crepuscular species; very fast moving.

Thomas's Snake *Coluber thomasi

1 28 April, Wadi Mararah. One at about mid-day in a small *Acacia nilotica* approximately 4 m in height where it sought refuge in a hollow in the trunk.

Range and comments: Endemic to the coastal plains and mountains of the Dhofar (in Yemen and Oman). The record falls within the known range but is only the second for Yemen. Little is known about this diurnal micro-colubrid and there are very few records.

Sand Snake, Tree Snake *Psammophis schokari schokari*

1 14 April, al-Mahwit, 15°33'N 43°36'E, 700 m. One dead by path (killed by local villagers) near valley bottom.

2 29 April, base of Wadi Mararah. One observed crossing road.

Range and comments: A widespread species in Arabia also occurring throughout North Africa east to north-west India. The survey record from Wadi Mararah represents a substantial (although not unexpected) eastward extension to the known range in Yemen. It has a mildly toxic bite.

Cat Snake *Telescopus dhara dhara*

1 22 March, Jabal Iraf, 1,400 m. One spot-lighted at night on the ground in open *Juniperus*-dominated woodland.

Range and comments: Widespread in the Arabian peninsula but distributed mostly in the montane periphery north to about 29°N. Occurs throughout most of Yemen. A separate sub-species *T. d. obtusus* occurs throughout much of north and north-east Africa. A nocturnal, back-fanged snake with mildly toxic venom.

Family Viperidae Vipers

*Saw-scaled Viper, Carpet Viper *Echis coloratus*

1 28 March, Bir 'Ali. A single dark individual, found in a small burial chamber within basaltic rock at the archaeological site of Qama, approximately 200 m from coastline.

2 1 May, Wadi Sh'hout, 16°20'N 50°43'E, 800 m. One spot-lighted at night (20.30 hrs) side-winding across loose sand.

Range and comments: Occurs outside Arabia only in north-east Egypt. The survey record from Wadi Sh'hout represents an unexpected easterly range extension in Yemen. Moves almost entirely by side-winding; extremely venomous.

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BIBLIOGRAPHY

- ARNOLD, E. N. (1986) New Species of Semaphore Gecko (*Pristurus: Gekkonidae*) from Arabia and Socotra. *Fauna of Saudi Arabia* 8: 352-377.
- ARNOLD, E. N. (1986) A Key and Annotated Checklist to the Lizards and Amphisbaenians of Arabia. *Fauna of Saudi Arabia* 8: 385-435.
- ARNOLD, E. N. (1993) Historical changes in the ecology and behaviour of semaphore geckos (*Pristurus: Gekkonidae*) and their relatives. *J. Zool., London* 229: 353-384.
- GALLAGHER, M. (1990) *Snakes of the Arabian Gulf and Oman, 2nd ed.* Mazoon Printing Press, Oman.
- GASPERETTI, J. (1988) Snakes of Arabia. *Fauna of Saudi Arabia* 9: 169-399.
- GROOMBRIDGE, B. (1983) *World Checklist of Threatened Amphibians and Reptiles, 3rd ed.* Nature Conservancy Council, London.
- HELLENUS, D. AND GASPERETTI, J. (1984) The Chameleons of Saudi Arabia. *Fauna of Saudi Arabia* 6: 513-526.
- LEVITON, A. E., ANDERSON, S. C., ADLER, K. AND MINTON, A. (1992) *Handbook to Middle East Reptiles and Amphibians.* Society for the Study of Amphibians and Reptiles, Ohio, USA.

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