

## **The reptiles of Jebel Hafeet**

**Khan, M. A. R. (1998)**

### **Introduction**

The isolated anticlinal massif of Jebel Hafeet dominates the surrounding flat desert plains of the eastern Abu Dhabi emirate and north western Oman. Rising some 1000 metres above the plains, it is visible from up to 50 km away on a clear day, and its distinctive whaleback shape acts as a major landmark. The main mountain massif measures approximately 15 by 3.5 km, orientated on a NNW to SSE axis, and the summit reaches approximately 1300 metres above sea level. From the plains the mountain appears uncompromisingly steep, rugged and largely devoid of vegetation, but closer inspection reveals a complex topography of deeply incised gulleys, cliffs, terraces and exposed slopes offering a diverse range of habitat to the animals and plants which live there.

Jebel Hafeet can be considered an outlier of the main Hajar mountain range which stretches from the Ru'us al Jibal in Musandam in the north through an arc some 650 km long to the Hajar as Sharqi in eastern Oman. This mountain chain has acted as a refuge and centre of endemism for more temperate species of plants (Ghazanfar and Fisher, 1998) and animals including reptiles (Arnold, 1981; Arnold, 1987; Arnold and Gallagher, 1977). There are strong affinities between the fauna and flora of the Hajar mountains and those of more northerly regions across the Gulf. For example the Persian horned viper *Pseudocerastes persicus persicus* is found in northern Iraq, throughout Iran and into northern Pakistan. It is also found at altitudes above 1000 m throughout the Hajar mountains. The leaf-toed gecko genus *Asaccus* appears to have made a significant radiation within the Hajar mountains (Arnold and Gardner, 1994; Gardner, 1994), with four endemic species (*A. caudivolvulus*, *A. gallagheri*, *A. platyrhynchus* and *A. montanus*). The remaining three species in the genus are found across the Gulf (*A. kermanshahensis* in the Zagros mountains of Iran, *A. griseonotus* in Iraq and Iran, and *A. elisae* from Iran to southern Turkey (Dixon and Anderson, 1973; Eiselt, 1973; Rastegar-Pouyani, 1996; Tok et al., 1997)). The skink *Ablepharus pannonicus* is found north of the Gulf from Central Asia, through Iraq, Iran, and Pakistan to northern India. In Arabia it has isolated populations in mesic mountain areas in the Asir and Hajar mountains.

In common with herpetology in the UAE in general (Gardner, in press), knowledge of the reptiles of Jebel Hafeet is incomplete and mainly comes from casual observations. The earlier accounts of natural history in the region by travellers and naturalists (Thesiger, 1949, Tourney et al, 1982) rarely mention reptiles, and accurate identification of the species has been hampered by a lack of available identification keys and descriptions. This latter concern was largely addressed with the publication of *A key and annotated check list to the lizards and amphisbaenians of Arabia* (Arnold, 1986) and *The snakes of Arabia* (Gasperetti, 1988). The *Handbook to Middle East Amphibians and Reptiles* (Leviton et al., 1992), and the popular *Wild about reptiles: Field guide to the reptiles and amphibians of the UAE* (Jongbloed, 2000) also make identification easier, though it should be noted that the latter book does not have

detailed species descriptions or identification keys. As reptiles are notoriously variable in colour and pattern, this can lead to unreliable records.

The most detailed study and account of the reptiles on Jebel Hafeet is that by Reza Khan (Khan, 1998) who conducted field work on the mountains in all seasons in 1997 and 1998. This account borrows heavily from his work and papers on other aspects of natural history published in *The Natural History, Geology and Archaeology of Jebel Hafeet* published by the Emirates Natural History Group, Abu Dhabi (Hornby et al., 1998). Following Khan (1998), this account concentrates on the species living on the mountain itself, with some comments on species on the surrounding gravel outwash plains, but not the species of the dune fields to the west and south of the mountain.

### **The reptile species recorded on Jebel Hafeet**

The total number of species recorded from Jebel Hafeet itself is surprisingly low, being just ten species including six lizards and four snakes. To some extent this may turn out to be due to incomplete knowledge and a lack of detailed study, particularly for nocturnal and cryptic species. These recorded species are described below.

#### **Sinai agama *Pseudotrapelus sinaitus* (Heyden, 1827)**

The Sinai agama is a medium sized lizard reaching a maximum of 85 mm in snout to vent length in northern Oman (Arnold, 1980), though individuals from Jebel Hafeet are generally smaller. The tail is long, slightly over twice the snout to vent length, and the limbs are also very long. The ear opening is larger than the eye, almost circular and may have one or two pointed scales along its anterior margin. The dorsal scales are relatively small and uniform, pointed, keeled and imbricate. The tail is cylindrical and its scales are not arranged in whorls.

These lizards are highly variable in colour, making rapid colour changes depending on physiological state. Non-reproductive individuals of both sexes are usually cryptic brown, often mottled with lighter scales. There are usually transverse darker bands across the back, behind the front limbs and anterior to the hind limbs. The tail is closely banded with approximately 25 narrow darker bands in original tails. The legs too are usually banded. Females often have an oval red-brown spot on each side behind the front legs. When basking and in reproductive phase, lizards of both sexes may show vivid blue on the head, back and tail and the pattern of bands and blotches is hidden. On being disturbed, this blue colour fades within seconds, though may persist on the head for longer.

This species has a typical Saharo-Sindian distribution from SE Libya, Egypt, Sudan, Palestine, Jordan and parts of Arabia. Within the UAE, it is typical of mountain and rocky areas, but not the sand seas or plains. This species is common on Jebel Hafeet and is probably the most frequently seen diurnal reptile. It ranges from the base of the mountain to the summit and is an excellent climber. It frequents steep rocky areas, wadi bottoms, boulders and will also climb trees. Territorial males select prominent perches on larger boulders as lookout positions, and use eye movements, nods and pushups as intraspecific signals. During the hotter months the long legs are used to lift the body well clear of the hot ground.

Sinai agamas mainly feed on insects, including ants, grasshoppers, and beetles. They are opportunistic, active feeders and are likely to take other prey such as smaller lizards if they are available. The breeding season on Jebel Hafeet has not been studied, but is likely to be over the spring and summer months, with females laying relatively small clutches of 5 to 9 eggs (Schleich et al., 1996).

### **Hadramaut sand lizard *Mesalina adramitana* (Boulenger, 1917)**

*Mesalina adramitana* is a small fast-moving lacertid typical of gravel plains and hard sand surfaces, often with sparse vegetation (Arnold, 1984; Arnold and Gallagher, 1977; Ross, 1988). It reaches up to 46mm snout to vent length in northern Oman. The tail is long and quite variable, between 1.8 and 2.5 times as long as SVL. Unlike the fringe-toed lizards (genus *Acanthodactylus*) the rear toes do not have fringes of long scales, and the nostrils are rather bulbous and are well separated from the first upper labial scale. Over its range the species is quite variable in colour, but Jebel Hafeet individuals are relatively uniform, having an unmarked centre to the back bordered by distinct dotted longitudinal lines on each side. This is followed laterally by a lighter stripe and then a wider dark longitudinal band contrasting strongly with the creamy under parts. The dorsal bands continue beyond the vent and meet at an angle over the tail.

Hadramaut sand lizards have a south Arabian distribution from Yemen, Oman, the UAE and Saudi Arabia. Around Jebel Hafeet these lizards are found on the gravel outwash, in Wadi Tarabat and on the lower slopes of the mountain where suitable habitat occurs. Its diet is insectivorous with ants being the main prey. It hunts actively during daylight, darting after insects. Khan (1998) also observed several specimens actively feeding in the early evening hours under road lighting.

### **Fan-footed gecko *Ptyodactylus hasselquistii* (Donndorff, 1798)**

The fan-footed gecko is a medium sized climbing gecko typical of cliffs, steep rocky wadis, scree slopes, caves and crevices. They will also use buildings and other man-made structures and Khan observed them in road culverts and an electricity kiosk on Jebel Hafeet (Khan, 1998). These geckos reach 93 mm SVL in northern Oman, though those on Jebel Hafeet appear to be rather smaller. Fan-footed geckos have very distinctive feet, with all digits clawed and having two diverging series of adhesive lamellae terminally, somewhat like a fan. The claws are retractile into the anterior notch of the digital expansion. The legs are long and slender. The adhesive toe pads are extremely effective and these agile geckos climb vertical rock and move upside down on cave roofs with ease. They move fast and are capable of long leaps.

The Jebel Hafeet fan-footed geckos are light buff in colour, matching the pale limestone rock remarkable well. A series of five or six transverse bands cross the neck and back, and the tail is well banded, with about 10-12 darker bands. The dorsal tubercles are small and appear as darker specks.

On Jebel Hafeet these geckos are found in suitable habitat from the mountain base at 280 m on the western side and 360 m on the eastern side, to at least 950 m. It is likely that they are found higher as they have been recorded at altitudes from sea level to 1500 m elsewhere in the Hajar Mountains. They are sometimes found living in colonies in

and around caves and rock crevices, such as those at Ain al Waal on the western flank of Jebel Hafeet. Within caves and crevices, communal egg laying sites are frequent, and these may have been used over long periods judging from the layers of old eggshell cemented to the rock. Females lay clutches of two hard shelled eggs which are cemented to the rock. Although this has not been studied here, females are likely to lay several clutches during the spring and summer. I observed freshly laid eggs and a heavily gravid female on 26 May 2004.

Fan-footed geckos are mainly nocturnal, but during cooler weather and in the late afternoon they may often be seen outside their daytime retreats. On cool winter nights they are active in the early part of the night, while the rocks retain warmth, but in summer the activity period is longer. Temperatures may be remarkably high for geckos. One individual measured at Ain al Waal on 26 May 2004 at 19.45 hrs had a body temperature of 39°C, 2 °C higher than the ambient air temperature.

### **Banded ground gecko *Bunopus spatulurus* Anderson, 1901**

The banded ground gecko of the Hajar mountains was described as a separate subspecies *hajarensis* (Arnold, 1980). This is a small (up to 50 mm SVL) ground gecko without adhesive toe pads. The cylindrical tail is shorter than the head and body length, and has a rounded tip. Hafeet individuals have a milky coffee-coloured dorsum, crossed with dark chocolate brown bands. The head sometimes has some darker mottling. There is a band across the neck, one across the sacral region and three bands between the pairs of limbs. These bands may sometimes be divided into three blotches, and may have wavy edges. The dorsal surface of the neck and body has a series of longitudinal rows of enlarged, blunt scales with distinct keels. There are about eight such rows at midbody and six between the hind legs. These enlarged scales are distinctly darker than the background colour. There is a pair of enlarged scales under the head posterior to the mental scale. The tail is divided into about 24 segments each made up of three whorls of scales, and has about eight darker bands.

On Jebel Hafeet the banded ground gecko is found from the mountain base to the summit. Its preferred habitats are stony plains, wadi beds, and scree slopes. During the day it shelters under stones or under dead wood and rubbish. It leaves its day time shelter at dusk and at least in summer, may be active most of the night.

### **Rock semaphore gecko *Pristurus rupestris* Blanford, 1874**

The rock semaphore gecko was reported from Jebel Hafeet by Stuart and Stuart in rocky wadi bottoms in the western and southern portions of Jebel Hafeet according to Khan (1998). It is certainly expected to occur as it is abundant in the nearby Hajar mountains and is also reported from Al Ain city and the low hills near the cement factory just north of the mountain. However it was not seen by Khan in his field studies, and has not been seen on the mountain by other naturalists (pers. comm. from Gary Feulner, Chris Drew and Peter Cunningham). I have not seen it on Jebel Hafeet despite specifically looking for it. Hence it may be that it is highly localized on the mountain or perhaps is more abundant and conspicuous after wet years.

The rock semaphore gecko is a very small, diurnal species, which favours rocky wadi beds, scree slopes and rock slabs. It is widely distributed from Somalia, Jordan, Arabia,

southern Iran and coastal Pakistan. In Oman this species is found from sea level to the summit of Jebel Shams at over 3000m. Semaphore geckos are so called as they communicate with each other with a range of complex tail wags and waves as well as other postural signals.

### **Asian snake-eyed skink *Ablepharus pannonicus* (Lichtenstein, 1823)**

Khan (1998) reported a possible sighting of this species by the side of the Jebel Hafeet road and Chris Drew (pers. comm.) observed one in the wadi below the summit hotel at about 900 m. This species has a very wide worldwide range, including parts of Iraq, Iran and central Asia, and its presence in Arabia is restricted to the mountains. It is known from several localities in the Hajar mountains including Asimah, Wadi Khudayrah, Wadi Deifta and the Wuqbah oasis. Most other sightings have been in well vegetated areas such as date gardens and its presence on Jebel Hafeet is therefore quite surprising.

The Asian snake-eyed skink is so called as it lacks eyelids, instead having a transparent spectacle covering the eye. It is a small species with proportionally small legs and a sinuous body. Its colour is quite variable, many individuals being uniformly dark, but may also be strongly marked with longitudinal stripes.

### **Schokari sand racer *Psammophis schokari* (Forsskål, 1775)**

The Schokari sand racer *Psammophis schokari* also has a wide range, from North Africa to Nepal. They are thin, fast-moving, diurnal snakes with distinct neck, elongate head, and may reach 150 cm in length. The eye is large with a round pupil surrounded by a pale yellow ring and golden-brown iris. The body pattern is of longitudinal cream and dark stripes on an olive or tan background. This pattern is variable with some snakes being conspicuously striped while others are almost uniform. There is a pair of non-venomous fang-like teeth in the upper jaw at the anterior edge of the eye, and one or two pairs of strongly enlarged and grooved venomous fangs at the posterior edge of the eye. The prey of lizards, small birds, rodents and other snakes is caught, chewed to immobilise with the venom, and then swallowed head first. The venom is not considered dangerous to humans. This species is diurnal and frequently found in trees or shrubs in which it climbs with ease. On the ground it moves by lateral undulation. Its main food are lizards including geckos, lacertids and agamids, though it will also take small mammals and birds.

Khan reports two occurrences of this species, one killed at a labour camp at Mubazzarah and another at 300m asl in good ground cover in a runnel on the northern side of the mountain. Drew (pers com) also observed one quite high on the mountain in a wadi. This species has a very wide Saharo-Sindian distribution and its presence on Jebel Hafeet is certainly to be expected. In the Hajar mountains it has been recorded from sea level to 2950 m on Jebel Shams.

### **Hooded malpolon *Malpolon moilensis* (Reuss, 1834)**

The hooded malpolon *Malpolon moilensis* has a range through Northern Africa from Morocco to Egypt and Sudan, in south-west Asia from Jordan, Iraq, south-western Iran, and throughout Arabia. The maximum length is about 150 cm, with females being

larger and having proportionally shorter tails than males (Schleich et al., 1996). The hooded malpolon is a fast-moving diurnal snake with a chequered pattern and large, hooded eyes with round pupils and an orange or red iris. The head, clearly distinct from the neck, has a pointed snout which protrudes over the mouth. There are poison sacs and one or two very large grooved fangs situated just behind the eye, but the snake is not considered dangerous to humans.

When disturbed the hooded malpolon lifts the front third of its body off the surface, holds it at an angle of 45° to the ground and spreads a hood. Normally diurnal, these snakes may be crepuscular or even nocturnal during the summer. Khan reported two specimens of this species from near goat sheds at the northern edge of the mountain. The prey is varied and includes lizards, small mammals and other snakes. Oviparous, with clutches of 4 - 18 eggs laid in late summer. *Malpolon moilensis* is known to polish its scales with an oily secretion from the outside of the nasal flap beside the nostrils. Polishing is carried out by moving the head up and down over the flanks and ventral scales working progressively rearwards. In this way the secretion is applied in a continuous zig zag line along the entire length of the ventral surface. Each side of the head is used alternately. The purpose of scale polishing is not known for certain but is likely to reduce water loss and perhaps act in chemical communication.

### **Burton's saw-scaled viper *Echis coloratus* Günther, 1878**

This dangerous viper has been reported from the base of Jebel Hafeet and from the entrance to Wadi Tarabat by Khan (1998), who also reports that this species is well known to local shepherds and other workers. The species has a mainly Arabian distribution from the western mountains of Saudi Arabia and Yemen to the Hadramaut, east to near Riyadh and also in Oman and the UAE. Elsewhere it also occurs in eastern Egypt as far south as 24°S, and in Sinai to Jordan. Within the UAE it is well known throughout the mountainous areas and is frequently seen in wet wadis where it feeds on toads (Gillet, 1994).

Burton's saw-scaled viper is mainly active after sunset and in the early hours of the night, though in winter individuals may be active during daylight hours. It feeds on a wide range of prey including invertebrates, toads, lizards and small mammals. On soft ground it usually moves by sidewinding, though on rocky surfaces it often uses slow undulating or rectilinear locomotion. When threatened it forms a series of C-shaped coils and rubs the serrated keeled lateral scales against each other in opposite directions producing a loud rasping warning stridulation, which is amplified by the inflated body. The snake may strike rapidly from this defensive position. However this species is usually much less aggressive than the Sind saw-scaled viper *Echis carinatus*. Bites produce severe bleeding, local pain and swelling, slight to heavy local necrosis, renal failure, shock and abnormal ECG. Chronic renal failure may result from bites (Gilon et al., 1989; Malik, 1995; Tilbury et al., 1987). A case study of a human casualty suffering a non-fatal bite, probably of this species, is described by Wernery and Lipp (Wernery and Lipp, 1998).

Burton's saw-scaled viper *Echis coloratus* reaches a maximum total length of 75 cm, is more heavily built than the Sind saw-scaled viper, and is usually a dark brown or grey colour overall, with the top of the head being unmarked. At least in the UAE, the colour pattern has less contrast, with the pale dorsal markings being tan or grey rather than whitish. The head is strongly widened behind the eyes, especially in larger

individuals. There are usually three rows of scales separating the eyes from the labial scales, whereas *Echis carinatus* has only two.

### **Persian horned viper *Pseudocerastes persicus persicus* (Duméril, Bibron & Duméril, 1854)**

The Persian horned viper is a temperate species restricted within Arabia to the higher parts of the Hajar mountains, where almost all records are from above 1200 m asl. Cunningham (2002a) reported the first observation of this species on Jebel Hafeet. The individual seen was at approximately 900 m altitude on the western flanks of the mountain, and was basking in the early afternoon on a winter day (31 December 2001). Given their habitat requirements, these vipers are likely to be restricted to the highest areas of the mountain. As the area of ground over 900 m is very small, this population of his viper is likely to be very small on Jebel Hafeet.

This is a medium sized, thick bodied viper with prominent multi-scaled horns above the eyes. The dorsal colour and pattern is very variable, with a ground colour of grey or grey brown. The top of the head is plain except for a few irregular dark spots. There are a series of about 35 short cross bars down the dorsal surface, the right and left sides of the bars sometimes being out of phase. These bars sometimes are edged with black and white scales. The flanks below the ends of the cross bars may be cream with dark blotches or plain. Some individuals entirely lack the dorsal bars and spots. The belly is grey with dark spotting and a lateral series of dark spots. The tail tip is dark dorsally, and Cunningham speculates that this may be used to lure prey such as lizards, as has been reported for *Bitis peringueyi* in Namibia. However there are no recorded observations of the Persian horned viper using this behaviour.

When angry, this viper inflates the body and hisses loudly, but does not form writhing C-shaped coils. It is not highly aggressive and only strikes reluctantly.

### **Species recorded from the environs of Jebel Hafeet.**

A range of additional species have been recorded from the gravel plains immediately surrounding Jebel Hafeet, but have not been found on the mountain itself. The desert monitor *Varanus griseus* (Daudin, 1802) is the largest lizard in Arabia. They are fast, active, diurnal predators which cover large distances while hunting. Khan (1998) reported one individual at the base of the western flank of the mountain, and Drew (pers. comm.) has also observed one in this vicinity. They probably range all around the mountain except where there is too much human disturbance. The yellow-spotted agama *Trapelus flavimaculatus* Rüppell, 1835 is a diurnal species typical of hard surface desert plains, and has been seen around the base of the mountain by Chris Drew. A lacertid typical of gravel plains in much of Arabia as well as Sinai, Jordan and Iraq is the Snake-tailed fringe-toed lizard *Acanthodactylus opheodurus* Arnold, 1980 (Arnold, 1980; Arnold, 1986). This was first reported in the UAE at Ain al Fayda (Tiedmann, 1991) and notes on aspects of its ecology in an area between Jebel Hafeet and Al Ain were provided by Cunningham (2001). It is unlikely to venture onto the steep rock of the mountain, but may well occur in Wadi Tarabat and similar areas. The dhab *Uromastyx aegyptia microlepis* Blanford, 1874 is a large herbivorous diurnal

lizard. It is widespread in the desert plains of lowland Oman and the UAE and has been seen by Chris Drew at the entrance to Wadi Tarabat.

Two nocturnal geckos are recorded from the base of the mountain. The eastern sand gecko *Stenodactylus leptocosymbotes* Leviton and Anderson, 1967 and the Baluch Ground Gecko *Bunopus tuberculatus* Blanford, 1874 are both recorded by Cunningham (2001) between Jebel Hafeet and Al Ain. The former, also reported in the Hafeet area by Baha El Din (1996) is typical of gravel plains and hard sand substrates, while the latter is very widespread in lowland UAE in a variety of habitats including sand sheets and gravel plains. A nocturnal species which is likely to predate these geckos is the Sind saw-scaled viper *Echis carinatus sochureki* Stemmler, 1969. This is a small and irascible viper found in firmer sand plains and more vegetated areas. Khan observed an individual at the base of the mountain on the northern side and reports that it is common at Al Ain Zoo some 5 km north of the mountain (Khan, 1998).

### **Species, which may occur on and around Jebel Hafeet, but have not been recorded.**

With the development of hotels, residences, and other facilities on and around the mountain, along with irrigated gardens, the lizard species typical of such anthropogenic habitats will certainly follow. Hence the yellow-bellied house gecko *Hemidactylus flaviviridis* Rüppell, 1835, the Turkish gecko *Hemidactylus turcicus* (Linnaeus, 1758), and the Rough-tailed Bowfoot Gecko *Cyrtopodion scabrum* (Heyden, 1827) are almost certain to be present in these artificial habitats. So too is the ocellated skink *Chalcides ocellatus* (Forsskål, 1775), which occurs in gardens in Al Ain (Cunningham, 2002b).

More intriguing are the apparent absences of other reptile species, which are typically found in the Hajar mountains, but so far have not been recorded from Jebel Hafeet. These include Gallagher's leaf toed gecko *Asaccus gallagheri* (Arnold, 1972), Jayakar's Oman lizard *Omanosaura jayakari* (Boulenger, 1887), the blue-tailed Oman lizard *Omanosaura cyanura* (Arnold, 1972), and the tessellated mabuya *Mabuya tessellata* Anderson, 1895. Bosk's fringe-toed lizard *Acanthodactylus boskianus* (Daudin, 1802) has been reported from the interface between the gravel plains bordering the mountains and the active sand dunes to the west (Arnold, 1984), but has not yet been reported from the area around Jebel Hafeet. Snake species which are found in the Hajar mountains in habitats similar to Jebel Hafeet include the Wadi Racer *Coluber rhodorachis* (Jan, 1865) and the Arabian cat snake *Telescopus dhara*. Further studies are required to determine whether these absences are real or simply due to lack of detailed observations, particularly at night. However it may be that the isolation of Jebel Hafeet together with the limited area of suitable habitats available at higher altitudes has not allowed populations of some species to colonize or survive on the mountain.

### **ACKNOWLEDGEMENTS**

I am grateful to the many field naturalists who have freely given me access to their reptile observations and data, without which it would not have been possible to write this chapter. In particular, I would like to acknowledge Gary Feulner, Peter Cunningham, Reza Khan, Chris Drew and Sherif Baha el Din.



**Checklist of reptiles recorded on and in the vicinity of Jebel Hafeet (excluding sand dwellers).**

**SUBORDER SAURIA (LIZARDS)**

Family Agamidae (Chisel-teeth lizards)

*Pseudotrapelus sinaitus* (Heyden, 1827) Sinai Agama

*Trapelus flavimaculatus* Rüppell, 1835 Yellow-spotted Agama

*Uromastix aegyptia microlepis* Blanford, 1874 Spiny-tailed Lizard or Dhabb

Family Gekkonidae (Geckos)

*Bunopus spatulurus* Anderson, 1901 Banded Ground Gecko

*Bunopus tuberculatus* Blanford, 1874 Baluch Ground Gecko

*Pristurus rupestris* Blanford, 1874 Rock Semaphore Gecko

*Ptyodactylus hasselquistii* (Donndorff, 1798) Fan-footed Gecko

*Stenodactylus leptosymbotes* Leviton and Anderson, 1967 Eastern Sand Gecko

Family Lacertidae (Wall and Sand lizards)

*Acanthodactylus opheodurus* Arnold, 1980 Snake-tailed Fringe-toed Lizard

*Mesalina adramitana* (Boulenger, 1887) Hadramaut Sand Lizard

Family Scincidae (Skinks)

*Ablepharus pannonicus* (Lichtenstein, 1823) Asian Snake-eyed Skink

Family Varanidae (Monitor lizards)

*Varanus griseus* (Daudin, 1802) Grey or Desert Monitor

**SUBORDER SERPENTES (SNAKES)**

Family Colubridae (Colubrids)

*Malpolon moilensis* (Reuss, 1834) Hooded Malpolon or Moila Snake

*Psammophis schokari* (Forsskål, 1775) Schokari Sand Racer

Family Viperidae (Vipers)

*Echis carinatus sochureki* Stemmler, 1969 Sind Saw-scaled Viper

*Echis coloratus* Günther, 1878 Burton's Saw-scaled Viper

*Pseudocerastes persicus persicus* (Duméril, Bibron & Duméril, 1854) Persian Horned Viper

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