

Survey of the Reptilian Fauna of the Kingdom of Saudi Arabia. I – The Snake Fauna of the Central Region

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Abstract. The snake fauna inhabiting the Central Region of the Kingdom of Saudi Arabia has been investigated by the collection and subsequent identification of 211 specimens from various localities in the Region. Fourteen species belonging to five families: Boidae, Colubridae, Elapidae, Leptotyphlopidae and Viperidae were recorded. The following species were reported from the Central Region for the first time: *Atractaspis microlepidota engaddensis*, *Leptotyphlops macrorhynchus*, *Spalerosophis diadema cliffordi*, *Telescopus dhara dhara*, *Coluber ventromaculatus* and *Eryx jayakari*. The geographical distribution of the snakes is presented together with notes on their habitats, and general biology.

Introduction

Although the desert is a harsh environment, it supports a considerable number of resident animal species, of which the reptiles constitute a major part. The Kingdom of Saudi Arabia is mostly desert and its geographical location between the temperate and tropical climatic regions, together with the extreme variations in its climatic conditions, make it unique in harbouring many species of reptiles. However, very few ecological studies have been undertaken on Saudi Arabian snakes and lizards. Certain authors have described small collections of amphibians and reptiles from different regions in Saudi Arabia, including the Southern Hijaz [1-2]; Eastern Arabia [3]; Northeastern Arabia [4]; Central Arabia [5-6] and Riyadh [7]. Farag and Banaja [8] identified four anuran species, 28 species of lizards and 15 species of snakes, and mapped their distribution in the western region of Saudi Arabia. Fifty one species of snakes can be recognised in Arabia. Nine of these are poisonous sea snakes and the remaining 42 species are terrestrial, of which 9 are poisonous [4,9-13].

The present study is the first in a series of surveys of the reptilian fauna of Saudi Arabia and deals with snake species of the Central Region.

Materials and Methods

Field trips were carried out to different locations of the Central Region of Saudi Arabia between 1983 and 1986. The most favourable time for collection is between March and July, when environmental conditions are most suitable for animals to be found. Live snakes were kept in an animal house. All snakes were maintained in large glass cages measuring $100 \times 50 \times 45$ cm, each of which contained a substratum of sand, vegetation and stones which were added to the sand to simulate a natural habitat. Water was provided *ad lib* and the snakes were fed laboratory-bred mice, each being given a mouse every 10–14 days. Illumination was provided for 9 hr daily from a 100 w lamp above the cages. Each snake was identified or confirmed by the author, Dr. E.N. Arnold, Department of Zoology, British Museum (Natural History) and by Mr. John Gasperetti of the California Academy of Sciences. Notes were made on the most salient diagnostic features of each species including colour, body measurements, shape, morphology together with remarks on its behaviour, biology and ecology.

Results and Discussion

A total of 14 snake species were recorded from the various locations sampled in the Central Region and their geographical distribution within the Region is mapped.

Family: *Boidae*

This family is represented by a single species in Saudi Arabia:

Eryx jayakari (Boulenger 1888)

Common English name: Jayakar's sand boa

Local name: Al-Defan or Al-Dasas; meaning the one that hides by burying itself in the sand.

Distribution

Widely distributed from North and East Africa to India and Central Asia [14]. In Saudi Arabia, it has been reported from Southern Hijaz, Jeddah and the Dhahran-Abqaiq area [9]. However, in the Central Region only tracks have previously been observed [9], but these specimens from Al-Thimamah, Al-Zulfi, Muazilah, Rwayghib, Buraydah, Al-Kharj, Haradh and Nafud Al-Dahi (Fig. 1) are the first authentic reports from this region.

Remarks

Fifteen specimens of this harmless nocturnal snake were excavated after tracing their tracks on the surface early in the morning. The dorsal colour was yellowish to

golden brown, with brown transverse bars. The ventral colour was creamy-white. The head is small, and the small eyes are situated on the top of the head (Plate 1a).

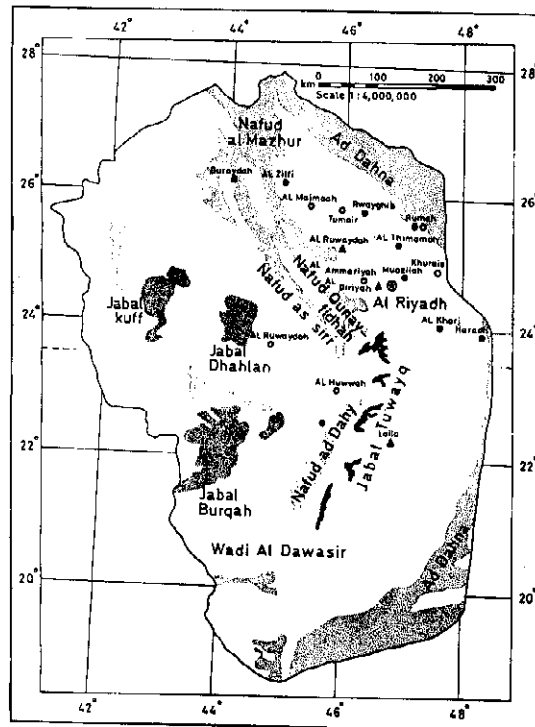


Fig. 1. Map of the Central Region showing the distribution of:
(○) *E. jayakari*; (▲) *L. macrorhynchus*; (○) *W. negyptia*.

Family: *Colubridae*

This family is represented by eight species:

Coluber elegantissimus (Günther 1878)

Common English name: Whip snake or racer

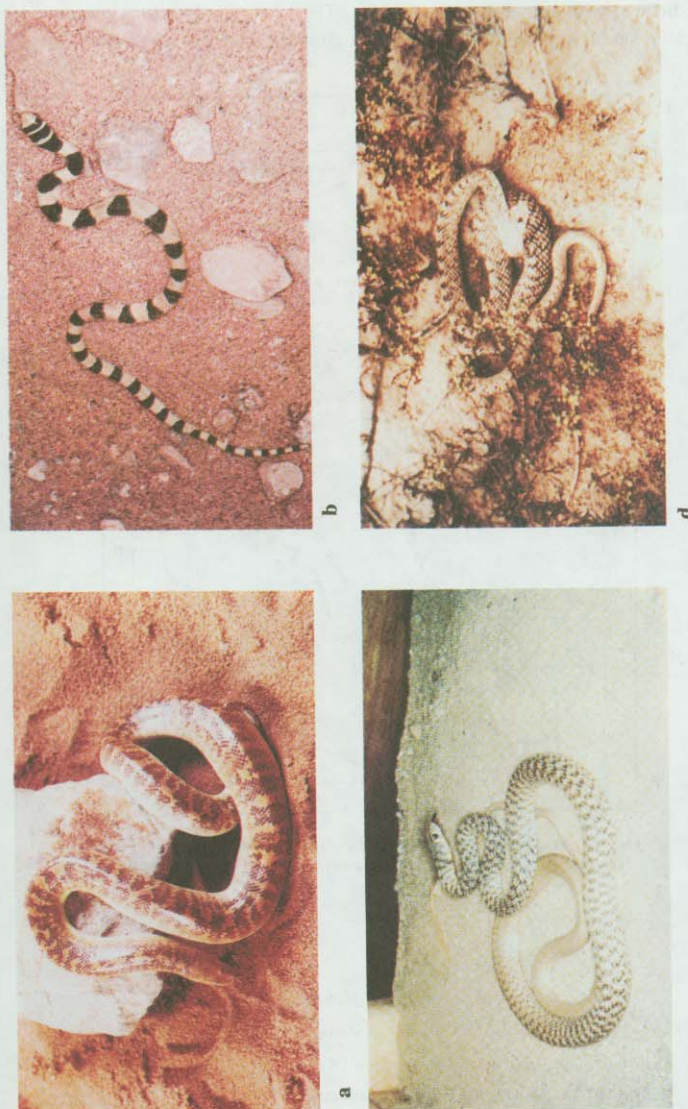


Plate 1. (a) *Eryx jayakari*, (b) *Coluber elegantissimus*, (c) *Coluber rhoderhachis*, (d) *Coluber ventromaculatus*

Distribution

Jordan and Palestine [10]. In Saudi Arabia, it has been reported from Al-Hawiyah and Yanbu [8] and from El-Muwaylih, Nabhaniyah, aqabah and Al-Taif-Abha Road [9]. In the Central Region, it was found at Al-Riyadh, Al-Majmaah and Al-Bukayriah (Fig. 2).

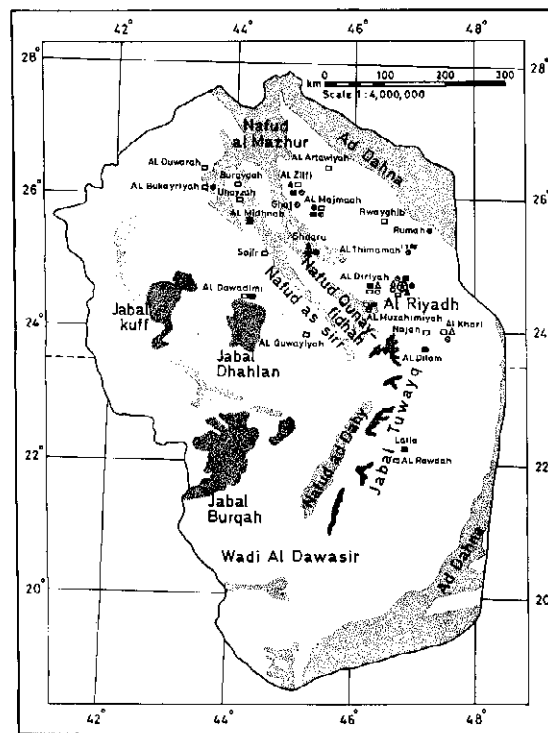


Fig. 2. Map of the Central Region showing the distribution of:
 (●) *C. elegantissimus*; (△) *C. rhoderhachis*; (○) *C. ventromaculatus*;
 (▲) *L. d. arabicus*; (□) *M. mollensis*; (■) *P. s. schokari*;
 (⊙) *S. d. cliffordi*; (*) *T. d. dhara*

Remarks

Three specimens were collected from sandy areas, together with one found dead near the Riyadh-Al-Majmaah highway. The largest was about 50.5 cm long. It is a

colourful snake, white on the dorsal side with black bands alternating with white bands on the entire body length. Some have vertebral red stripe on the back. The ventral colour is white. This snake is nocturnal and very rare in Saudi Arabia and its beautiful colour makes it unique and unmistakable compared with other Saudi snakes. Although, non-venomous it bites when molested but with no serious consequences (Plate 1b).

Coluber rhoderhachis rhoderhachis (Jan 1865)

Common English name: Cliff racer

Distribution

Ranging from Libya to Northwest India [15]. In Saudi Arabia it has been reported from Buryman, Jeddah, Abha and Wadi As-Sirrah [10], and from Jeddah [8]. In the Central Region it was recorded in Al-Riyadh, Al-Kharj and Al-Diriyah (Fig. 2).

Remarks

Three specimens were collected from a rocky habitat. The largest (about 120 cm long) was elongated and cylindrical in appearance. The colour was reddish or pinkish dorsally and pale white ventrally. Although this highly active snake is one of the commonest species in the Middle East, it is uncommon in the Central Region. It is non-venomous and feeds on rats, lizards and birds (Plate 1c).

Coluber ventromaculatus (Gray 1834)

Common English name: The rat snake

Distribution

Extends from Palestine through Jordan, Iraq, Iran, Pakistan and India [10]. In Saudi Arabia it has previously been reported from Al-Jubayl, Al-Qatif, Dhahran, Abqaiq and Al-Hassa [10]. The present records from Al-Riyadh and Al-Diriyah are the first from the Central Region (Fig. 2).

Remarks

Two specimens were collected near old houses in Al-Riyadh and Al-Diriyah. The largest was about 97 cm long, and the other was a juvenile. The colour was dark grey dorsally with brown spots. The ventral side was pale grey with black bands. This snake feeds on birds, rats and lizards. It is non-venomous (Plate 1d).

Lytorhynchus diadema arabicus (Hass 1952)

Common English name: Leaf-nosed snake

Distribution

This species is known from North Africa eastward to South Western Asia [8]. In Saudi Arabia, it has been reported from Dhahran, Abqaiq, Jeddah, Ras As-Shara,

Al-Qahmah, Halaban, Al-Khubara and Al-Qurayn [10] and from Zaymah and Hadda [8]. In the Central Region, it was collected from Shagra, Al-Riyadh and Al-Zulfi (Fig. 2).

Remarks

Four specimens of this nocturnal sand snake were collected from sandy places near gravel patches. The largest was about 78 cm. This snake is characterized by a leaf-like shield on the snout. The dorsal colour was very similar to the colour of sand with brown spots. Ventral side was white. The eyes are large and rounded. It is harmless (Plate 2a).

Malpolon moileensis (Reuss 1834)

Common English name: Moila snake

Local name: -Abu Aleuon or the snake with big eyes.
-Hannish or Daab

Distribution

Known throughout most of North Africa from Algeria in the north to Sudan in the south [16] and extends east as far as Iran [17-18]. Records of this species are widely scattered throughout Saudi Arabia including Abqaiq, Dhahran, Abu-Hadriyah, Wafra, Ras As-Shara, Jeddah, Al-Muwaylih, Al-Biar, Tuwal, Al-Jumum, Sabya, Jibal Akwah, Jabrin, Jabal Damkh and Al-Riyadh [8,10]. In the present research, it was reported from Al-Riyadh, Al-Diriyah, Najan, Al-Kharj, Al-Thimamah, Rwayghib, Al-Majmaah, Al-Artawiyah, Al-Zulfi, Buraydah, Unayzah, Al-Bukayriyah, Al-Quwarah, Al-Muzahimiyah, Al-Quwayiyah, Al-Dawadimi, Sajer, Shagra and Al-Rawdah (Fig. 2).

Remarks

Forty five specimens were collected from sandy and rocky areas. The largest was about 140 cm long. The colour was similar to the colour of sand with small scattered dark brown patches on the back. The ventral colour was yellowish. There were dark brown spots bordering the large eyes. The fangs lie posteriorly in the jaw: this snake is considered semivenomous. Its prey includes small rodents, birds and lizards (Plate 2b).

Psammophis schokari schokari (Forskal 1775)

Common English name: Afro-Asian sand snake,
Variable sand snake

Local name: Zarug or speedy snake

Distribution

Extends from North Africa east to Pakistan and India [15,19-20]. In Saudi Arabia, it has been reported from Dhahran, Al-Qatif, Hail, Afif, Jeddah, Ras As-



b



a



d



c

Plate 2. (a) *Lytorthynchus diadema*, (b) *Malpolon moitensis*, (c) *Psammodphis schokari*, (d) *Spalerosophis diadema*

Shara, Burayman and Jizan [10] and from Wadi Fatimah [8]. In the present study, it was collected from Al-Dilam, Al-Riyadh, Al-Thimamah, Al-Diriyah, Al-Muzahimiyah, Shagra, Al-Majmaah, Al-Zulfi, Al-Bukayriyah, Laila and Al-Dawadimi (Fig. 2).

Remarks

Thirty specimens (largest was about 125 cm in length) were collected from vegetated habitats. The body is cylindrical and elongated. The head is distinct from the neck and the long tail. The colour was olive brown dorsally with yellowish or light brown longitudinal lines, two extending along the entire body on each side and the third on the middle. Its bite may cause severe pain and nausea for a few days (Plate 2c).

Spalerosophis diadema cliffordi (Schlegel 1837)

Common English name: –Clifford's snake
–Clifford's Royal snake

Local name: –Thirwan
–Al-Argam or the spotted one

Distribution

Throughout North Africa and eastwards through Syria, Arabia, Iraq to western Iran [21]. In Saudi Arabia, it has been reported from the northern Red Sea coast, Jeddah and southern Hijaz [10] and from Duba and Abha [8]. The present record is the first from the Central Region. It was found in Al-Riyadh, Al-Muzahimiyah, Ghat, Rumah, Al-Thimamah, Al-Majmaah, Al-Kharj, and Al-Zulfi (Fig. 2).

Remarks

Eight specimens (largest was about 119 cm) were collected from sandy areas. The head is flattened and distinct from the neck with a diamond-shaped pattern. The colour is similar to the colour of sand, with large dark spots or blotches on the dorsal side. The ventral side was white. It is one of the most aggressive snakes but not venomous although its bite causes a slight pain (Plate 2d).

Telescopus dhara dhara (Forskal 1775)

Common English name: Cat snake

Distribution

Extends throughout Arabia [9]. In Saudi Arabia, it has been reported from Medina, South Hijaz, Aqiq Al-Ghamid, Burayman and Sidi Hamzah [9]. The present records from Shaqra and Al-Midhnab are the first from the Central Region (Fig. 2).

Remarks

Two specimens were collected from a sandy area. The largest was about 90 cm long. The colour was rust-red dorsally and light brown ventrally (Plate 3a). It is uncommon in the Central Region. Nothing known about its ecology.

Family: *Elapidae*

This family is also represented by a single species:

Walterinnesia aegyptia (Lataste 1887)

Common English name: –Black desert cobra
–Inne's cobra.

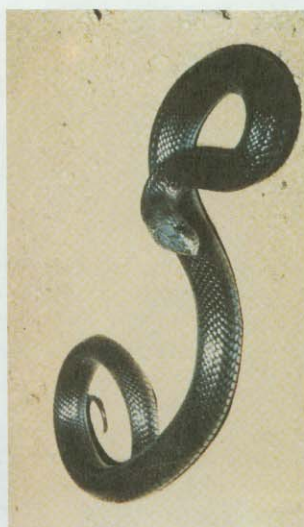
Local name: –Yaim
–Al-Sul; meaning the Black one.

Distribution

Extends from Egypt in the west through Palestine into Iraq and as far north as southeastern Iran (36°N) [10]. In Saudi Arabia, it has previously been reported from Riyadh, Al-Thughba, Wadi Qatan, Ain Dar, Al-Mishaab [10]. In the present study, it was found in Al-Majmaah, Khurais, Rumah, Al-Huwwah, Al-Ruwaydah, Al-Ammariyah, and Tumair (Fig. 1).

Remarks

Five specimens were collected, the largest of which was about 133 cm. This shiny black snake is uncommon in the region and seldom seen. It inhabits arid desert and is mainly subterranean, with a nocturnal activity pattern. Unlike most other cobras, *W. aegyptia*, does not spread its hood when disturbed. The body is robust and long with a broad head distinct from the neck. It is one of the most venomous snakes in Arabia and characterized by rigid, grooved fangs at the front of the upper jaw. Its venom is neuro-toxic (Plate 3b).



b



d



a



c

Plate 3. (a) *Telescopus dhara*, (b) *Walterinnesia aegyptia*, (c) *Leptotyphlops macrorhynchus*, (d) *Atractaspis microlepidota*

Family: *Leptotyphlopidae*

This family is only represented by one species:

Leptotyphlops macrorhynchus (Jan 1861)

Common English name: Thread snake or worm snake

Local name: Dud or Worm

Distribution

This species is distributed throughout west and northern Africa, southwestern Asia to the north of Turkey [22]. In Saudi Arabia, it has previously been reported from Jeddah [8-9]. The present records from Al-Diriyah, Laila and Al-Ruwaydah are the first from the Central Region (Fig. 1)

Remarks

Fifteen specimens of this fossorial snake were caught under rocks near a cultivated area during the winter of 1986. The largest was about 15.3 cm long, elongated and cylindrical. The head was indistinct from neck and the tail short and pointed. The colour was pinkish dorsally and pale ventrally. The species feeds on termites (Plate 3c).

Family: *Viperidae*

This family is represented by three species:

Atractaspis microlepidota engaddensis (Hass 1950)

Common English name: Oasis mole viper or Burrowing adder

Local name: -Abu shenf; meaning the father of camel with ring in its nose [11].
-Al Asuad or the Black snake.

Distribution

It ranges from Egypt to Palestine and *A. microlepidota andersonii* is a subspecies similar in appearance, which is found in the southern part of Saudi Arabia [9]. The snake *A. microlepidota engaddensis* is uncommon in Saudi Arabia and the present record is the first in the Central Region.

In the present study, it was found near Al-Zulfi and Al-Diriyah (Fig. 3).

Remarks

Two specimens of this snake have been found recently. The first, 72 cm long, was obtained causing a fatal bite to a young girl in Al-Diriyah. The second specimen, (about 48 cm long) was caught near a cultivated area after heavy rain. It was black

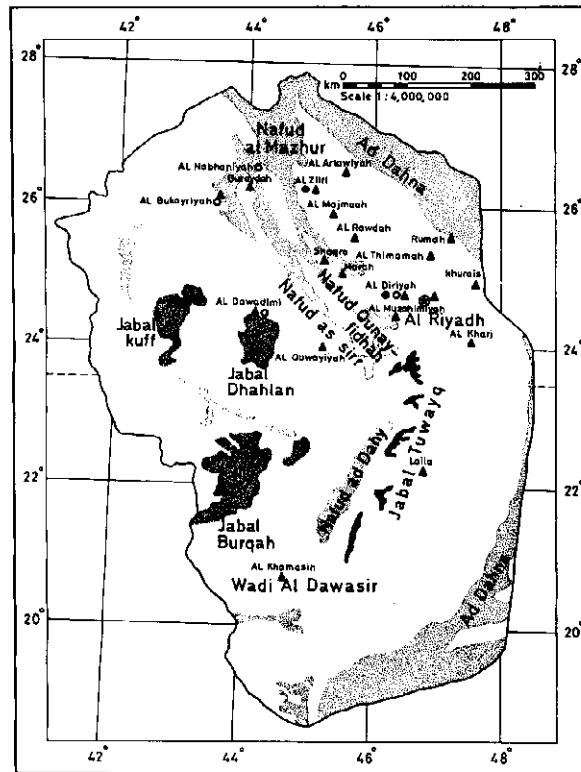


Fig. 3. Map of the Central Region showing the distribution of:
 (●) *A. m. engaddensis*; (△) *C. c. gasperetti*; (○) *E. coloratus*.

above with a grey ventral color. The body was small and unlike other vipers and head was indistinct from the neck. Unlike most other poisonous snakes, this species is fossorial and probably nocturnal. Though considered highly venomous, little is known about either the action or potency, of its venom (Plate 3d).

Cerastes cerastes gasperetti (Leviton & Anderson 1967)

Common English name: Horned viper

Local name: —Hayya umm jnaeb

—Umm grun or horned snake.

Distribution

This species is widely distributed throughout Africa to southwestern Asia. In Saudi Arabia, it has been reported from Alula, Jizan, Duba, Ummlij, Dirs [8] and from Bishah, Jabrin, Abqaiq, Dharan, Al-Jubayl, Badanah and Mahd Al-Dhahab [9]. It is the commonest snake in the Central Region. In the present research, specimens were obtained from Al-Riyadh, Al-Kharj, Khurais, Al-Thimamah, Marah, Al-Rawdah, Al-Zulfi, Al-Diriyah, Al-Bukayriyah, Buraydah, Shagra, Al-Majmaah, Al-Artawiyah, Al-Dawadimi, Al-Quway'iyyah, Laila, Al-Khamasin, Al-Muzahimiyah and Rumah (Fig. 3).

Remarks

Seventy two specimens were caught in sandy and rocky areas. Adults ranged from 44 to 80.5 cm in length and juveniles from 21 to 27 cm. This species is easily distinguished by the presence of short horns on the supraorbital region of the head but some individuals are hornless. The body is robust and the tail is very short. The head is broad and subtriangular. The colour varies from red in northern populations to brown in southern populations, matching the colour of the habitat (Plate 4a). A highly venomous snake, its bite may be fatal.

Echis coloratus (Gunther 1878)

Common English name: Burton's carpet-viper

Local name: Al-ragta or spotted snake.

Distribution

Common throughout Africa and found in southern Palestine, Jordan, Egypt and southern Arabia [15]. It is also present in India and Bengal [23, pp.248-344] and was previously recorded in Saudi Arabia from Ummulj Yanbu [8] and jeddah, Jabal Shar [9]. Specimens were obtained from Central Region from Al-Diriyah, Al-Dawadimi, Al-Nabhaniyah, and Al-Bukayriyah (Fig. 3).

Remarks

Five specimens were collected and the largest was about 55 cm. The body was rather small with a dorsal brown colour and marked with a series of irregular yellowish white bands along the length of the body (note the common name: Plate 4b). The head was broad, flattened and distinct from the neck with a pale marking like a broad arrow or bird's foot [24]. Because of its limited distribution (compared with that of *C. cerastes*) the carpet viper might not be considered as a serious hazard to man. However, it is aggressive and one of the most venomous snakes, responsible for the majority of snake bites in Africa [16].

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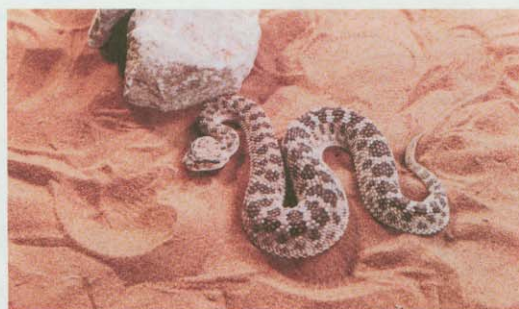
**a****b**

Plate 4. (a)*Cerastes cerastes gasperetti*, (b)*Echis coloratus*.

California Academy of Sciences for his efforts in identification of some of the specimens and also for offering me the use of his photographic collections. Thanks are also due to Dr. E.N. Arnold, Reptile Section, Department of Zoology, British Museum (Natural History) for identification of the species sent to him. I also gratefully acknowledge the technical assistance of the following: N.M. Abdo, J. Tulba, M. Esia, A. Fetei Al-Bab, and M. Mansi.

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مسح للمجموعة الحيوانية الزاحفة في المملكة العربية السعودية . ١ - الثعابين في المنطقة الوسطى

محمد خالد السعدون

قسم علم الحيوان، كلية العلوم، جامعة الملك سعود، ص.ب ٢٤٥٥ ،
الرياض ١١٤٥١ ، المملكة العربية السعودية

(أُستلم في ٢٤ شوال ١٤٠٧هـ، قُبِلَ للنشر في ٢٨ رجب ١٤٠٨هـ)

ملخص البحث. لقد تم في هذا البحث جمع ٢١١ عينة من الثعابين من بيئات مختلفة في المنطقة الوسطى من المملكة العربية السعودية في الفترة من شهر مارس حتى يوليو ولمدة ثلاث سنوات. وقد صنفت هذه الثعابين بمساعدة المتحف البريطاني للتاريخ الطبيعي وكذلك السيد جون جاسبرتي من أكاديمية العلوم بكاليفورنيا.

تم من خلال هذه الدراسة تسجيل ١٤ نوعاً من الثعابين رصدت ستة أنواع منها لأول مرة في المنطقة الوسطى. وتتبع هذه الأنواع خمس عوائل هي: عائلة الحيات العمياء ضيقة الأفواه، عائلة البوا، عائلة الصلال، عائلة الأفاعي وعائلة الكلوريدا.

وقد دُرس التوزيع الجغرافي لكل نوع من الثعابين في أنحاء العالم وكذلك توزيعه داخل المملكة العربية السعودية بالإضافة إلى أماكن تواجده في المنطقة الوسطى مع وصف مبسط لأهم الصفات والطباع التي يمتاز بها كل نوع من هذه الثعابين.