

Snakes in the Province of Ha'il, Kingdom of Saudi Arabia, including two new records

Ha'il is a Saudi Arabian principality located in the central north of the country between 25°17'N and 28°52'N, and 39°18'E to 44°21'E. It covers an area of 112,444 km². The zoogeography of the Arabian fauna was subject to studies since long (WALLACE 1876; ANDERSON 1896; SMITH 1983; ARNOLD 1987; JOGER 1987; SINDACO & JEREMČENKO 2008; SINDACO et al. 2013). Although there is comprehensive information available about the snakes of Arabia (among recent publications, e.g., GASPERETTI 1988; AL-SADOON 1989; SCHÄTTI & GASPERETTI 1994; EGAN 2007), little is known about the snakes of the Ha'il region. The first herpetological study in Ha'il was conducted by DEKINESH (1991) who reported 13 species of snakes from the region, which include some doubted species records.

In the past few years, there has been increased interest in the herpetology of Ha'il; SHARAWY & ALSHAMMARI (2009) reported five species of venomous snakes from the Aja Mountains, west of Ha'il city. ALSHAMMARI et al. (2014) analyzed the gene sequences of Saudi Arabian vipers with results that indicate only two species of the genera *Cerastes* and *Echis* to be present in Ha'il. Finally, ALSHAMMARI & IBRAHIM (2015) reported five species of snakes from the Faid Historical Hema, 90 km northeast of Ha'il. The lizard fauna of the the Ha'il region was surveyed and updated (ALSHAMMARI 2012; ALSHAMMARI & IBRAHIM 2015), however, the number of snake species in Ha'il remained uncertain.

To compensate for this deficit, the authors surveyed a total of 31 localities covering all types of habitats in the Ha'il region (Fig. 1) such as the An-Nufud desert, rocky areas, hard soil, gravel terrain and green fields. The field trips were conducted at least twice per season from 2010 to 2014. Snakes were captured by hand or using tools. To obtain as many snakes as possible, both snakes observed in the wild and others contributed to the lab by volunteers were recorded. Each study site was surveyed at least once every year. Surveys were conducted at each site during day and night for

diurnal and nocturnal species, respectively. A total of 56 specimens were examined. The snakes were labeled and preserved in glass jars containing 70 % ethanol or 10 % formalin, and deposited in the Museum of Biology Department at Ha'il University (HUM).

Twelve species of snake belonging to five families (Boidae, Colubridae, Lamprophiidae, Elapidae and Viperidae) were recorded in the Ha'il region (Table 1), two for the first time: *Lytorhynchus diadema* (DUMÉRIL, BIBRON & DUMÉRIL, 1854), and *Platyceps rhodorachis* (JAN, 1865).

Eryx jayakari BOULENGER, 1888

Materials: HUM034, 9 June 2010, Al-Fatkha. HUM035, 22 May 2010, Baqa'a. HUM036, 25 September 2011, Qina. HUM037, 2 October 2011, Qina. Observed at An-Nufud desert and Al-Jithiatha.

This burrowing boid species is widespread in the sandy areas of the Arabian Peninsula (GASPERETTI 1988; SINDACO et al. 2013). Within Ha'il, it was previously reported in the areas of Sumayra and Al-Hayit (DEKINESH 1991).

Lytorhynchus diadema (DUMÉRIL, BIBRON & DUMÉRIL, 1854)

Materials: HUM038-039, 23 May 2011, Baqa'a. HUM040, 8 June 2012, Al-Fatkha'a. Observed at Qina and Al-Jithiatha.

The species is widespread in the Arabian Peninsula (GASPERETTI 1988; SCHÄTTI & GASPERETTI 1994; SINDACO et al. 2013). This is the first record within the Province of Ha'il. The nocturnal species was found in the middle of the night in sandy desert areas. It inhabits sand deserts, gravel plains and salt flats "sabbkha" (AMR & DISI 2011). LEVITON et al. (1992) suggested treating *Lytorhynchus kennedyi* K. P. SCHMIDT, 1939, and *L. gaddi* NIKOLSKY, 1907, as subspecies of *L. diadema* to conform the application of the species concept within the *L. diadema* group. However, SCHÄTTI & GASPERETTI (1994) did not accept the placement of *L. gaddi* as a subspecies of *L. diadema*. The examined specimens are characterized by a striking crown-shaped pattern on the head parietal scales. This consists of a dark brown circle on a tan ground color

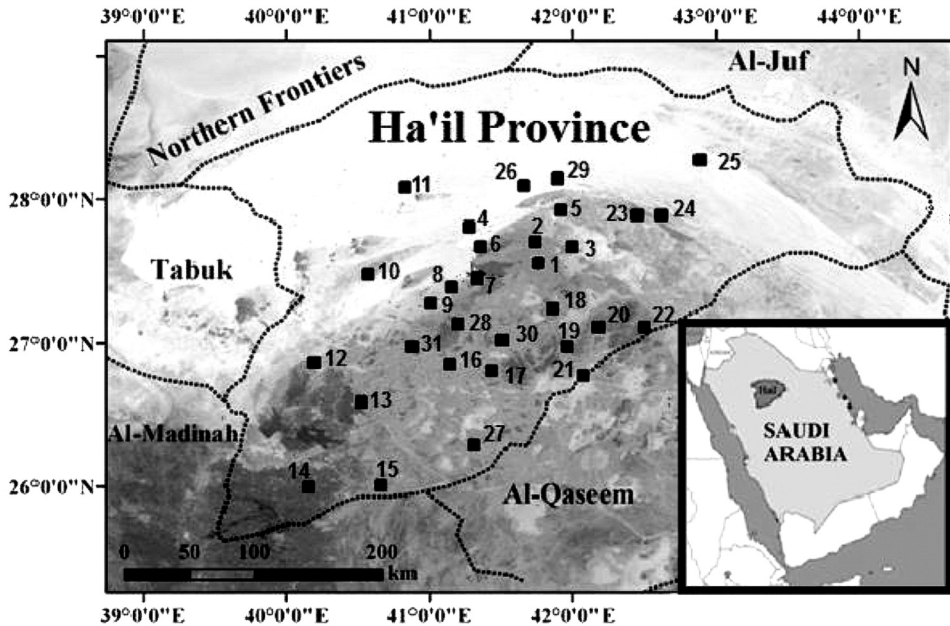


Fig. 1: Map of the Province of Ha'il (Saudi Arabia), showing the position of the localities studied.

- 1 – Ha'il city, 2 – Naqbeen, 3 – Haqrusin, 4 – Al-Qaa'id, 5 – Al-Khuttah, 6 – Qina, 7 – Aja mountains, 8 – Al-Fatkha, 9 – Mawqaq, 10 – Al-Mahafar, 11 – Jubbah, 12 – Ash-Shamli, 13 – Darghat, 14 – Al-Hayit, 15 – Al-Hulaifa As-Sufla, 16 – Al-Ghazalah, 17 – Ar-Rawdha, 18 – As-Sib'aan, 19 – Salma mountains, 20 – An-Nai, 21 – Sumayra, 22 – Faid, 23 – Baq'aa, 24 – Al-Jathiatha, 25 – Turubah, 26 – An-Nufud, 27 – As-Sulaymi, 28 – Sahay, 29 – Al-Jafir, 30 – Al-Mubaydi, 31 – Jofayfa.

with a tan center adjoined frontally with a dark bar across the posterior of the frontal shield and across the supraoculars to the eyes, and distally by a dark brown longitudinal bar that runs to the back of the nape. The dorsal part of the body is yellowish brown or brown, with a series of approximately 30 ovoid or rhomboidal splotches; each splotch is edged with some white scales. The ventral part is uniformly creamy in color.

Platyceps elegantissimus
(GÜNTHER, 1878)

Materials: HUM027, 27 October 2012, Al-Qa'id. HUM053, 5 May 2014, Al-Qa'id. HUM064, 1 May 2014, north of Ha'il.

This species is present in the northwest, southwest and center of the Arabian Peninsula (GASPERETTI 1988; EL-ORAN et al. 1994; SINDACO et al. 2013). Specimens

were collected from sandy areas near green fields, earlier records were reported from Al-Khuttah and Qina by DEKINESH (1991). All specimens collected in the present survey were found at more than 1,100 m a.s.l. In a study criticized by ALOUFI & AMR (2015), MASOOD (2012) reported this species at Jazan, southwest Saudi Arabia, from hard sandstone and rocky habitats at heights ranging from 17 to 472 m a.s.l.

Platyceps rhodorachis
(JAN, 1865)

Materials: HUM051, 20 April 2013, As-Sulaymi. HUM052, 13 March 2014, Naqbeen.

This xerophilic species is found in the central and southern parts of the Arabian Peninsula (GASPERETTI 1988; SINDACO et al. 2013). This is the first record of *P. rhodorachis* for the Province of Ha'il.

Table 1: A list of snake species located in the Saudi Arabian Province of Ha'il, including the corresponding locality numbers as indicated in Figure 1.

Species	Record locality number
<i>Eryx jayakari</i>	6, 8, 14, 21, 23, 24, 26
<i>Lytorhynchus diadema</i>	6, 8, 23, 24
<i>Platyceps elegantissimus</i>	1, 4, 5, 6, 29
<i>Platyceps rhodorachis</i>	2, 27
<i>Spalerosophis diadema</i>	3, 4, 12, 16, 21, 22, 23, 24, 27, 29
<i>Telescopus dhara dhara</i>	1, 7, 13, 14
<i>Atractaspis engaddensis</i>	6, 10, 11, 14, 15, 23, 27
<i>Psammophis schokari</i>	1, 5, 6, 9, 11, 14, 15, 21, 23
<i>Rhagerhis moilensis</i>	6, 10, 11, 14, 15, 23, 24
<i>Walterinnesia aegyptia</i>	18, 22, 23
<i>Cerastes gasperettii</i>	1, 5, 9, 8, 13, 14, 19, 22, 23, 24
<i>Echis coloratus</i>	2, 9, 8, 20, 22, 27, 28, 31

Spalerosophis diadema cliffordii
(SCHLEGEL, 1837)

Materials: HUM045, 17 May 2011, As-Sib'aan. HUM046, 22 May 2010, As-Sib'aan. HUM047, 16 May 2014, Haqrusin. HUM054-055, 11 May 2014, Al-Jithiatha. Observed at Al-Qaa'id.

This snake is widespread in Arabia, where it occurs from the sea level to high altitudes (GASPERETTI 1988; SCHÄTTI & GASPERETTI 1994). In the Province of Ha'il it was previously collected from Faid, Al-Jafr, Sumayra, Al-Ghazalah, Ash-Shamli and As-Sulaymi (DEKINESH 1991; ALSHAMMARI & IBRAHIM 2015).

Spalerosophis diadema cliffordii is common in the Ha'il region. Snakes were collected from beds of wadis with scant vegetation, as well as in green fields close to the sandy areas of the An-Nufud desert.

Telescopus dhara dhara
(FORSSKÅL, 1775)

Materials: HUM048, 15 June 2010, Aja Mountains. HUM056, 21 May 2014, north of Ha'il.

This species is found in most parts of the Arabian Peninsula, in particular along the coasts of the Red and Arabian Seas in Yemen to the north of Oman (WERNER 1988; SCHÄTTI & GASPERETTI 1994; AMR & DISI 2011). In the Province of Ha'il, it was previously recorded from Darghat and Al-Hayit (DEKINESH 1991). In this study, *T. dhara* was found in rocky areas close to farms and vegetated land.

Atractaspis engaddensis
HAAS, 1950

Materials: HUM011, 26 May 2011, Naqbeen. HUM012, 7 December 2011, As-Sulaymi. HUM013, 27 June 2010, Al-Mubaydi. Observed at the foot of a mountain at Naqbeen, about one hour after dusk.

This venomous snake is known from the western and central parts of Saudi Arabia (SCHÄTTI & GASPERETTI 1994; AMR & DISI 2011). Previous records from Ha'il were from Faid, Ar-Rawdha and Darghat (DEKINESH 1991; ALSHAMMARI & IBRAHIM 2015). *Atractaspis engaddensis* is fossorial and a strictly nocturnal species, rarely found on the surface of the ground.

Psammophis schokari
(FORSSKÅL, 1775)

Materials: HUM042-043, 13 June 2010, Baqa'a. HUM044, 9 June 2010, Al-Fatka. HUM057, 9 July 2013, Qina. Observed north of Ha'il city (roadkill).

This snake is common in Arabia and ubiquitous from sea level to the highest mountains. It was recorded even from some islands in the Red Sea such as Farasan Al-Kebir and Kamaran (CORKILL & COCHRANE 1965; GASPERETTI 1988; SCHÄTTI & GASPERETTI 1994). Previous records in the Province of Ha'il were from the settlements Al-Khuttah, Jubbah, Sumayra, Mawqaq, Al-Hulayfah As-Sufla and Al-Hayit. *Psammophis schokari* was found in the sand desert near green fields and shrubs but also in rocky locations.

Rhagerhis moilensis
(REUSS, 1834)

Materials: HUM041, 15 May 2014, Baqa'a. HUM058-059, 11 March 2012, Jubbah. HUM066, 6 June 2014, Al-Jithiatha. Observed at An-Nufud Desert and Al-Mahafar.

This snake is common to most of Arabia (GASPERETTI 1988; SCHÄTTI & GASPERETTI 1994; SINDACO et al. 2013). In the Province of Ha'il it was previously recorded from Al-Hayit, Qina and Al-Hulayfah As-Sufla (DEKINESH 1991). *Rhagerhis moilensis* is well adapted to sandy deserts and arid environments in rocky areas. The otherwise diurnal snake becomes crepuscular during the summer.

Walterinnesia aegyptia
LATASTE, 1887

Materials: HUM049, 25 June 2010, Baqa'a. HUM050, 22 May 2011, Baqa'a. HUM063, 2 May 2013, As-Sib'aaan.

The Desert Cobra is found in northern and central Arabia (AMR & DISI 2011; SINDACO et al. 2013). In the Province of Ha'il ALSHAMMARI & IBRAHIM (2015) reported this species from Faid. NILSON & RASTEGAR-POUYANI (2007) separated the eastern populations of *Walterinnesia* in Iran, Iraq, Turkey, Syria and eastern Saudi Arabia from *W. aegyptia* under the name *W. morgani* (MOCQUARD, 1905), while they considered *W. aegyptia* as the valid name of the snake in Egypt, Israel, Palestine, western Arabia, and Jordan.

This nocturnal and fossorial ophidian is mostly seen on agricultural land. The specimen from As-Sib'aaan was 161 cm long, which is the longest size ever reported for this species (comp. GASPERETTI 1988 who reported a specimen of 131.9 cm from north of Riyadh).

Cerastes gasperettii LEVITON
& ANDERSON, 1967

Materials: HUM015-020, May 2010, Baqa'a. HUM021, 10 March 2014, Al-Jithiatha. HUM022-024, 3 June 2010, Al-Fatkha'a. HUM025-026, 5 November 2011, Salma Mountains. HUM014, 6 September 2010, Faid. HUM065, 9 August 2013, Ha'il.

Cerastes gasperettii is distributed in the entire Arabian Peninsula, including Jordan, Iraq and western Iran (BUSAI & AL-

JUMAILY 2005; AMR & DISI 2011; SINDACO et al. 2013). In the Province of Ha'il it was previously recorded from Darghat, Al-Hayit, Faid, Mawqaq, Turubah and Al-Khuttah (DEKINESH 1991; ALSHAMMARI & IBRAHIM 2015). This viper is most common in sandy habitats.

Echis coloratus
GÜNTHER, 1878

Materials: HUM028, 15 April 2011 Jofayfa. HUM029-031, June 2010, Al-Fatkha. HUM032-033, 6 September 2010, Sahay. HUM060-061, 14 May 2014, An-Nai. HUM062, 3 April 2014, Naqbeen. Observed in an oasis-like habitat in rocky areas at Naqbeen just before dusk and in Al-Modayyeh (Salma Mountains) near a small swamp in which the toad, *Sclerophrys arabica* (HEYDEN, 1827), and its tadpoles were found.

Echis coloratus is known to occur in eastern Egypt, Sinai, Palestine, Israel, Jordan, and the Arabian Peninsula (BUSAI & AL-JUMAILY 2005; AMR & DISI 2011; SINDACO et al. 2013). In the Province of Ha'il this snake was previously recorded from Faid, Mawqaq and As-Sulaymi (DEKINESH 1991; ALSHAMMARI & IBRAHIM 2015).

DEKINESH (1991) reported the 59 specimens of snakes from the Ha'il area to represent 13 species. However, four records must be considered doubtful: *Cerastes vipera* (LINNAEUS, 1758), *Dyspeltis scabra* (LINNAEUS, 1758), *Hemorrhais ravergieri* (MÉNÉTRIES, 1832), and *Naja arabica* (SCORTECCI, 1932) (by this author referred to as *Naja haje*). There are no more records of *Cerastes vipera* (North African, eastwards as far as the Sinai Peninsula) and *H. ravergieri* (Irano-Turanian, isolated populations in Lebanon, Syria, and N Jordan) from the Arabian Peninsula, whereas the other two species are found in its south and southwest only (GASPERETTI 1988; EGAN 2007; SINDACO et al. 2013). The authors of the present note were not able to trace, at the University of Ha'il, any of the 726 reptilian specimens collected by DEKINESH (1991), thus leaving his identifications unverified.

Many snake species of the Arabian Peninsula are widespread and utilize a variety of habitat types, whereas others are considered endangered because they occur in limited areas and small populations. One of these is *Platyceps elegantissimus*, which is frequently killed by native people due its

conspicuous color which is suggestive of a venomous snake.

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