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REPTILES AND AMPHIBIANS OF AL MADINAH AL MUNAWWARAH PROVINCE, SAUDI ARABIA

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A total of 44 species of amphibians and reptiles are reported from Al Madinah Al Munawwarah Province, Saudi Arabia. They include two species of amphibian in two families (Bufonidae and Dicroglossidae) and 42 reptiles belonging to 16 families (Agamidae, Boidae, Chamaeleonidae, Colubridae, Elapidae, Gekkonidae, Lacertidae, Lamprophiidae, Leptotyphlopidae, Phyllodactylidae, Psammophiidae, Scincidae, Sphaerodactylidae, Varanidae, Typhlopidae, and Viperidae). *Platyceps sinai*, *Psammophis sibilans*, *Rhynchocalamus melanocephalus*, are recorded for the first time to the herpetofauna of Saudi Arabia. Range expansion for *Euphlyctis ehrenbergii* and Acanthocercus adramitanus to northern Saudi Arabia is reported. Our records expand the known distribution range of the Arabian Cobra, *Naja arabica*, further northwest.

Keywords: Reptiles; amphibians; Al Madinah Province; new records; Saudi Arabia.

INTRODUCTION

The area of the Al Madinah Province is located in the central part to the north-west of the Kingdom of Saudi Arabia (Fig. 1), with an area of about 153,800 km^2. Different types of habitats are found within Al Madinah; from high mountains such as Jabal Werqaan (2393 m a.s.l.) and Jabal Radhwa (2282 m a.s.l.). To the north, there is Jabal Al-Ward (2096 m a.s.l.). Lava fields constitute around (22.5%) of the province; including Harrat Rahat to the south and Harrat ‘Uwayrid to the north. Furthermore, several valleys that form a spectacular network. In addition to having many forms of wet lands like perennial flowing springs like Wadi Khadrah, and springs at Khyber and Al ‘Ula. Sand dunes are located to the east; while salt marches “sabkhas” vary from coastal and internal such Ga’a Hadhowdhaa. The Province has a waterfront along the Red Sea that extends for about 180 km. The reptiles and amphibians of Saudi Arabia were extensively studied in the past (Haas, 1957; Haas and Werner, 1969; Hillenius and Gasperetti, 1984; Balletto et al., 1985; Arnold, 1986; Al-Sadoon, 1988, 1989; Gasperetti, 1988; Al-Sadoon et al., 1991; Schätti and Gasperetti, 1994). Farag and Banaja (1980) studied the herpetofauna of western Saudi Arabia, with records from Al Madinah area. Recent studies provided more distributional data on the amphibians (Al-Johany et al., 2014; Al-Qahtani and Al-Johany, 2018) and reptiles (Hussein and Darwish, 2001; Cunningham, 2010; Al-Sadoon, 2010; Al-Shammari, 2012; Aloufi and Amr, 2015; Alshammari and Ibrahim, 2015; Al-Sadoon et al., 2016 and 2017; Alshammari et al., 2017; Alqahtani, 2018) of Saudi Arabia. In this report, field observations and additional locality records for 44 species of reptiles and amphibians are presented.

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MATERIAL AND METHODS

44 species of amphibians and reptiles were either collected or observed during the study period (2013 – 2019). Collected specimens were deposited at Taibah University, Department of Biology, Al-Madinah Al Munawwarah, Al-Madinah Zoological collection (MZC). Also, specimens from Al-Ula Zoological Collection (AZC) are included. Field trips were carried out and covered the main habitats with a total of 104 localities (Table 1,

TABLE 1. Localities from Which Material Were Collected

Locality	North	East	Locality	North	East
Abo Breqa	24°25′22.23″	39°33′46.96″	Alab	24°06′13.08″	38°55′48.13″
Abo Kabeer	24°22′53.55″	39°31′49.12″	Al Ays	25°01′49.91″	38°05′21.45″
Abo Swiseat	25°35′30.28″	39°24′32.14″	Dhabua'h	24°26′51.00″	39°29′21.00″
Abyar Al Mashi	24°09′34.00″	39°34′01.06″	Dhalamah	23°45′11.26″	39°33′08.58″
Ain Abo Dheba'a	23°12′13.16″	39°32′44.65	Erdah	26°54′02.26″	38°45′47.99″
Ain Al Askareah	25°44′36.70″	39°15′10.65″	Far'a Alradadi	24°18′04.20″	39°10′08.18″
Ain Al Easeerah	23°18′31.21″	39°35′46.37″	Fdhala	26°23′51.66″	37°49′38.97″
Ain Al Hamah	25°44′50.99″	39°15′36.48″	Ga'a Hadhowdhaa	24°29′07.19″	39°59′59.29″
Ain Al Medheeq	23°19′18.69″	39°37′06.58″	Habt	24°00′55.24″	39°11′42.55″
Ain Al Nejel	26°50′32.47″	37°22′34.10″	Harat Ewaredh	26°34′56.74″	37°54′41.05″
Ain Aourash	26°42′50.37″	37°39′44.89″	Hart Beli	26°10′42.93″	37°59′53.35″
Ain Um Al Eaal	23°15′05.72″	39°33′50.91″	Hazrah	24°17′23.53″	39°14′35.68″
Al Agra'a	27°07′38.60″	37°41′26.40″	Hema Al Naqea'a	23°40′45.08″	39°47′45.88″
Al Akahal	23°17′59.65″	39°50′07.83″	Hema Al Rabathah	24°38′20.49″	41°16′51.01″
Al Anabes	24°28′19.48″	39°35′08.37″	Jabal Ae'r	24°24′42.62″	39°34′08.18″
Al Azhary	24°29′24.02″	39°34′19.71″	Jabal Al Ward	26°24′06.78″	37°17′02.97″
Al Baladh Al Qademah	26°37′37.12″	37°54′51.81″	Jabal Udqus	23°34′29.91″	39°29′53.24″
Al Beidha'a	24°40′35.21″	39°27′41.82″	Jabal Um Khaimah	24°18′49.33″	39°27′02.89″
Al Behaethah	23°56′10.38″	39°03′08.86″	Khaybar	25°43′14.76″	39°15′42.12″
Al Bent Dam	25°29′06.34″	39°21′47.54″	Mada'in Saleh	26°45′58.00″	37°56′46.50″
Al Eshash	26°06′08.40″	39°24′19.78″	Madakheel	26°59′10.80″	37°47′03.70″
Al Faga'ali	24°39′37.62″	38°24′54.38″	Masader	26°47′41.85″	37°57′09.51″
Al Fegrah	24°20′51.84″	38°57′07.60″	Mughera'a	26°23′55.40″	38°03′21.20″
Al Fra'a	24°57′58.95″	38°02′07.20″	Qaraqer	26°44′40.60″	37°53′26.90″
Al Ghabah Dam	24°38′15.95″	39°30′21.31″	Shajwa	25°02′51.77″	38°59′47.24″
Al Har	24°32′56.30″	39°56′55.62″	Shanaseer	24°17′45.01″	39°27′29.01″
Al Harah Al Garbiah	24°27′46.09″	39°35′39.10″	Sharaan	26°52′19.20″	38°14′35.41″
Al Hefaerah	26°29′26.07″	39°13′59.84″	Sherawan	26°42′50.10″	38°11′58.70″
Al Hejr	26°48′19.21″	37°56′45.96″	Sulailat Juhainah	25°31′31.77″	38°24′28.92″
Al Heso	24°29′13.06″	41°17′09.02″	Suwaydrah	24°43′31.77″	40°08′32.70″
Al Jafr	24°23′41.57″	39°09′15.80″	Taibah University Campus	24°29′07.36″	39°32′17.28″
Al Jurf	24°31′50.45″	39°34′15.52″	Tasha	24°12′11.87″	38°52′24.19″
Al Khaef	24°02′22.90″	38°55′34.12″	Uhud farm	24°31′05.42″	39°35′50.76″
Al Khleeal	24°35′24.91″	39°33′59.12″	Wadi Al Heno	24°19′33.71″	37°53′59.12″
Al Malahat	25°00′53.53″	40°32′31.58″	Wadi Mezaraah	25°37′37.88″	39°26′15.37″
Al Mendasah	24°37′50.93″	39°19′12.84″	Wadi Abo Araj	24°15′37.03″	39°19′18.12″
Al Mofarehat	24°20′57.78″	39°25′31.51″	Wadi Al Aqeeq	24°29′24.86″	39°34′19.98″
Al Mu'atadel	26°42′33.20″	38°03′19.40″	Wadi Al Gher	26°36′22.41″	38°13′20.08″
Al Nefaed	26°11′36.58″	39°35′32.97″	Wadi Al Har	24°28′30.35″	39°54′10.36″
Al Nekhael	25°05′55.92″	40°29′34.05″	Wadi Al Hatebah	26°35′54.65″	38°10′12.11″
Al Othaeb	26°41′33.7 ″	37°54′16.20″	Wadi Al Hemdh	24°36′12.19″	39°24′40.10″
Al Oyon	24°30′18.27″	39°35′28.24″	Wadi al Jal a'b	24°44′25.80″	39°42′57.29″
Al Qawos	26°13′02.63″	38°29′20.36″	Wadi Al Jazel	26°32′38.69″	26°32′38.69″
Al Raje'a	23°34′02.74″	38°56′20.58″	Wadi Al Khung	24°28′41.64″	39°50′10.77″
Al Rehbah	25°34′13.02″	39°20′44.73″	Wadi Al Onaieq	24°20′51.84″	38°57′07.60″
Al Salam	24°28′49.19″	39°31′21.30″	Wadi Khadhrah	23°07′26.71″	39°40′24.28″
Al Sherebat	24°26′42.66″	39°38′05.17″	Wadi Mallal	24°19′45.42″	39°18′55.49″
Al Shubahah	24°47′50.16″	37°43′22.08″	Wadi Mezaraah	25°37′37.88″	39°26′15.37″
Al Sumaimah	24°34′23.71″	39°44′20.96″	Wadi Najar	24°18′51.16″	40°13′02.69″
Al Thajah	24°16′29.47″	39°09′20.79″	Wadi Reem	24°10′13.58″	39°19′50.03″
Al Themad	25°32′27.09″	39°20′12.68″	Wadi Hadeyah	25°31′39.07″	38°48′02.05″
Al Utemah	23°47′04.74″	39°36′34.99″	Wadi Nkhala	26°35'1 8.74″	38°13′03.27″

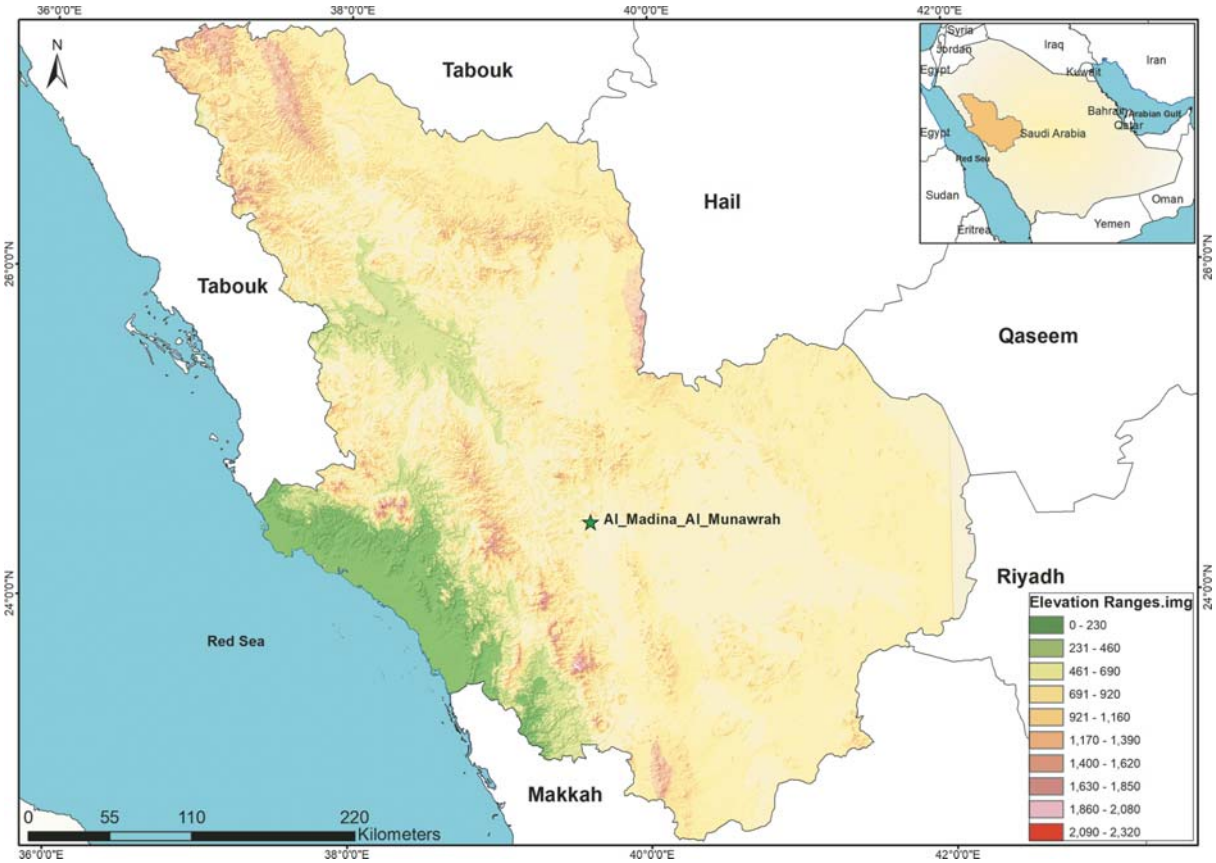

Fig. 1. Map showing location of Al Madinahh Province.

Figs. 1 and 2). Observed specimens were based on actual observations or through images send to us by the locals.

RESULTS

A total of 44 species of amphibians and reptiles are reported from Al Madinah Al Munawwarah Province, Saudi Arabia. They include two species of amphibian in two families (Bufonidae and Dicroglossidae) and 42 reptiles belonging to 16 families (Agamidae, Boidae, Chamaeleonidae, Colubridae, Elapidae, Gekkonidae, Lacertidae, Lamprophiidae, Leptotyphlopidae, Phyllodactylidae, Psammophiidae, Scincidae, Sphaerodactylidae, Varanidae, Typhlopidae, and Viperidae).

Amphibians
Family Bufonidae
Sclerophrys arabica (Heyden, 1827)

Material examined. MZC086, Wadi Al Aqeeq, 1.4.2018; MZC119, Wadi Mallal, 15.5.2017; MZC120, Wadi Al Aqeeq, 13.7.2018; MZC135, Wadi Aljoul, 19.9. 2013; MZC136 – 137, Ain Al Hamah, 19.9.2013.

Observed specimens. Ain Al Hamah, 19.9.2013; Al Othaeb, 5.6.2017; Al Nekhael, 16.9.2017; Al Bent Dam, 3.3.2018; Ain Al Medheeq, 12.3.2018; Wadi Al Hemdh, 9.4.2018; Ain Al Askareah, 3.3.2018; Al Themad, 3.3.2018; Ain Abo Dheba'a, 12.3.2018; Ain Al Easeerah, 12.3.2018; Ain Um Al Eaal, 12.3.2018; Al Azhary, 9.4.2018; Al Ghabah Dam, 9.4.2018; Al Oyon, 9.4.2018; Abo Breqa, 23.5.2018; Ain Aourash, 25.7.2018; Ain Al Nejel, 25.7.2018; Wadi Hadeyah, 1.2.2019.

Remarks. The Arabian Toad is distributed along the western part of Saudi Arabia as well as in Oman and the United Arab Emirates (Balletto et al., 1985; Schätti and Gasperetti, 1994). It was reported from northwestern Tabuk Province, which represents the most northern range of its distribution in Saudi Arabia, and Al Madinah (Farag and Banaja, 1980). It seem common in permanent water bodies including springs and dams within Al Madinah Province. Al-Johany et al. (2014) found this species only in irrigated palm farm areas and was not collected from dams. It is considered as an endemic species to western Arabia (Schätti and Gasperetti, 1994).

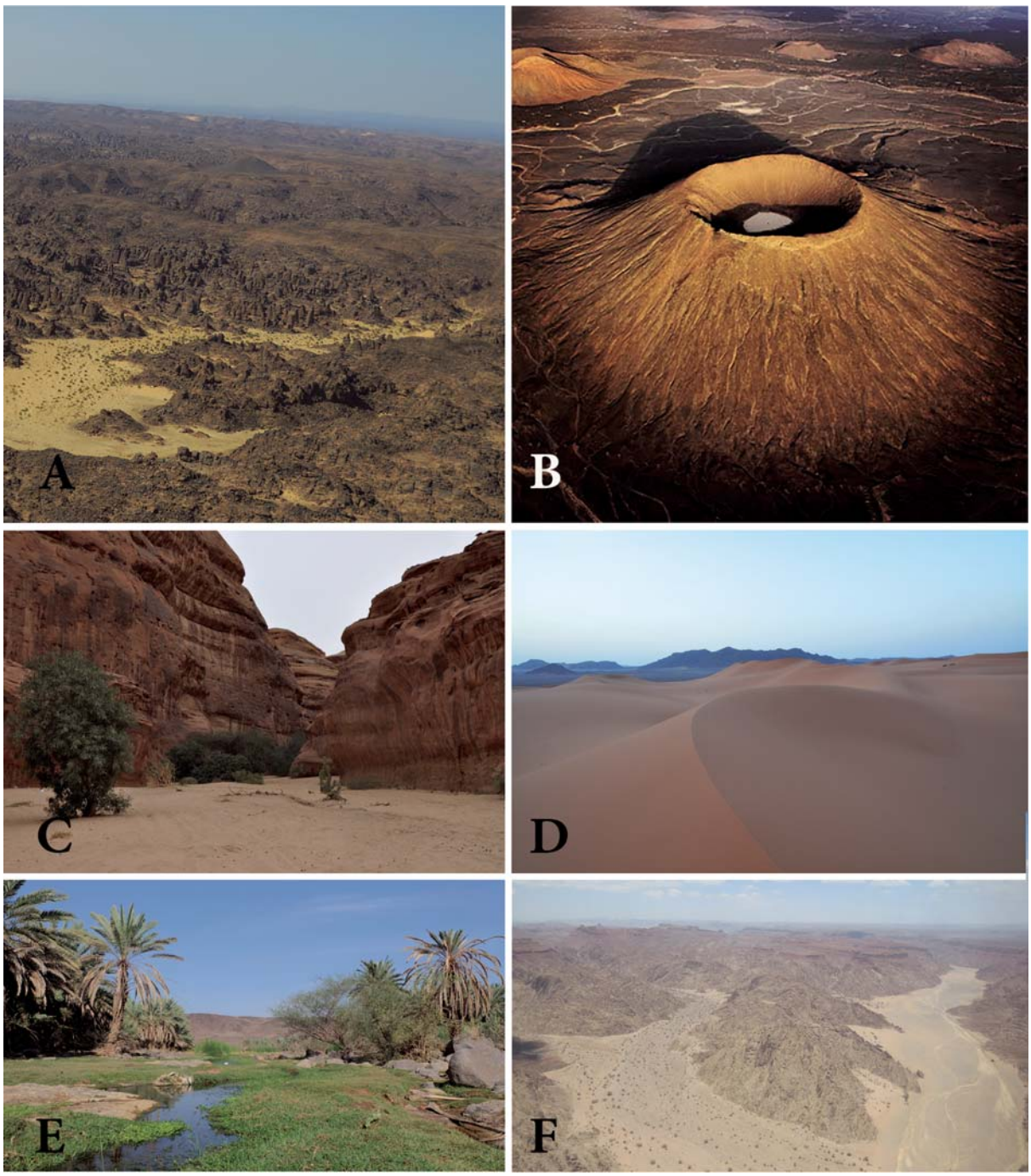

Fig. 2. Habitats of Al Madinah Province. A, Harat Ewaredh; B, Jabal al-Malsa' at Harat Rahat (Photo by Othman Lawlen); C, Sand stone desert in Madakheel; D, Al Nefaed sand dunes; E, Wadi Khadhrah; F, Wadies in Al Ula.

Family Dicroglossidae
***Euphlyctis ehrenbergii* (Peters, 1863)**

Material examined. MZC081, Wadi Khadhrah, 12.1.2018; MZC118, Wadi Khadhrah, 2.3.2019; MZC118, Ain Al Hamah, 19.9.2013.

Remarks. The distribution of this species is confined to southwestern Saudi Arabia (Balletto et al., 1985). Al-Qahtani and Al-Johany (2018) reported this species from as far north as Makkah. The present record extends its known distribution further north. This African

species is represented by a relict population in the Afromontane region of southwestern Arabia (Schätti and Gasperetti, 1994).

Family Chamaeleonidae
***Chamaeleo chamaeleon orientalis* Parker, 1938**
(Fig. 3F)

Material examined. MZC074, Al Ward, 25.9.2017; MZC075, Al Agra'a, 26.9.2017; AZC014, Al Agra'a, 4.9.2015.

Observed specimens. Wadi Mezaraah, 19.9.2013; Jabal Udqus, 15.3.2018; Al Agra'a, 25.8.2017.

Remarks. The distribution of this chameleon extend from Haql in northwestern Saudi Arabia to as far south reaching near Al Taif (Hillenius and Gasperetti, 1984; Schätti and Gasperetti, 1994). It was found associated with shrubs and trees in farmland (Aloufi and Amr, 2015).

Family Agamidae
***Acanthocercus adramitanus* (Anderson, 1896)**
(Fig. 3A)

Observed specimens. Al Fra'a, 4.5.2017; Wadi Khadhrah, 19.6.2018.

Remarks. This is an endemic species occurring in southwest Saudi Arabia, Yemen and Dhofar (Schätti and Gasperetti, 1994). Its presence in Saudi Arabia is confined to two localities within the vicinity of Al Taif (Schätti and Gasperetti, 1994). The present record expands its known distribution further north of to about 500 km north from Al Taif area. Wadi Khadhrah is characterized by dense vegetation with rocky basalt edges.

***Phrynocephalus nejdensis* Haas, 1957**

Material examined. MZC134, Al Nefaed, 20.9.2013.

Remarks. Melnikov et al. (2014a) differentiated between the *Phrynocephalus arabicus* Anderson, 1984 complex. Their study revealed that *Ph. arabicus* sensu stricto is distributed in southern Arabia (Yemen, Oman, southern Saudi Arabia), *Ph. nejdensis* from the northwestern Arabia (southern Jordan, northern and central Saudi Arabia), while *Ph. macropeltis* is known in the eastern coastal Arabia (eastern Saudi Arabia, UAE). The collected specimen came from sandy area surrounded by basaltic mountains.

***Pseudotrapelus aqabensis* Melnikov, Nazarov, Ananjeva et Disi, 2012** (Fig. 3B)

Material examined. MZC037, Wadi al Jal a'b, 6.8.2017; MZC092, Hema Al Naqea'a, 4.10.2018; MZC117, Wadi khadhrah, 2.3.2019; MZC121, Al Bent Dam, 21.9.2013; MZC122, Al Rehbah, 19.9.2013; MZC123, Al Hefaerah, 18.9.2013.

Remarks. This species was collected from two localities in Tabuk Province (Aloufi and Amr, 2015). Tamar et al. (2016) extended its range further to south of western Saudi Arabia. By now, this species is known from Jordan, Sinai, southern Palestine and western Saudi Arabia (Melnikov et al., 2014b; Aloufi and Amr, 2015; Tamar et al., 2016). *Pseudotrapelus aqabensis* differs from *Pseudotrapelus sinaitus* (Heyden, 1827) in having four well developed separated preanal pores in males and the third toe much longer than the fourth (Melnikov et al. 2012).

***Stellagama stellio* (Linnaeus, 1758)**

Material examined. AZC013, Madakheel, 22.3.2017.

Observed specimens. Sharaan, 4.8.2018. Madakheel, 23.3.2017.

Remarks. The systematic status of *S. stellio* in Saudi Arabia is not defined yet. Collected specimens are from the most northern borders of Al Madinah province, from sand stone mountains. It was previously collected from Al Disha, Tabuk Province (Aloufi and Amr, 2015). Reported previously from Jabal al Abyad near Khaybar, Jabal Aja in Hai'l and mount Arafat (Anderson, 1896; Arnold, 1986; Al-Shammari, 2012). It was not recorded from western and southwestern Saudi Arabia (Farag and Banaja, 1980; Schätti and Gasperetti, 1994).

***Trapelus agnetae* (Werner, 1929)** (Fig. 3C)

Material examined. MZC078, Al Mu'atadel, 23.9.2017.

Observed specimens. Hart Beli, 17.9.2018.

Remarks. A specimen was reported from Al Madinah by Anderson (1896) as *Agama ruderata*. Its presence was confirm in Mahazat as-Sayd, central Saudi Arabia (Cunningham, 2010). Other records include Dhahran (Haas, 1957), from between Al-Qaysumah and Turaif (Haas and Werner, 1969) and Hai'l (Al-Shammari, 2012).

***Trapelus flavimaculatus* Rüppell, 1835**

Material examined. MZC091, Hema Al Rabathah, 8.9.2018.

Observed specimens. Najar Valley, 13.12.2018.

Remarks. This species is common in southwest, eastern and central Saudi Arabia (Sindaco and Jeremčenko, 2008). Previously, it was reported from Yanbu (Farag and Banaja, 1980), Mahazat as-Sayd, southern Al Madina (Cunningham, 2010).

Fig. 3. Reptiles of Al Madinah Province: A, *Acanthocercus adramitanus* from Al Fra'a (photo by K. Al Juhani); B, *Uromastyx aegyptia* (photo by K. Al Saedi); C, *Trapelus agnetae*; D, *Uromastyx ornata* (photo by I. Al Aradii); E, *Pseudotrapelus aqabensis*; F, *Chamaeleo chamaeleon orientalis* from Al Agra'a (photo by I. Al Aradii).

***Uromastyx aegyptia* (Forskål, 1775)** (Fig. 3B)

Material examined. AZC011, Masader, 19.3.2017.

Observed specimens. Al Eshash, 22.9.2013; Mada'in Saleh, 7.4.2017; Mada'in Saleh, 1.8.2018; Al Beidha'a, 3.1.2019; Al Qawos, 30.7.2018; Wadi Al Hatebah, 2.8.2018; Wadi Al Jefran, 17.1.2019; Al Malahat, 25.2.2019; Al Heso, 8.3.2019.

Remarks. The Spiny-tailed Lizard is a common species inhabiting gravelly areas. It is widespread over the Arabian Peninsula (Wilms and Böhme, 2007).

***Uromastyx ornata* Heyden, 1827** (Fig. 3D)

Material examined. MZC055, Al Othaeb, 18.7.2017; MZC083, Wadi Mallal, 19.3.2018; MZC094, Al Beidha'a, 15.5.2017; AZC006, Alagra'a, 11.6.2016.

Observed specimens. Wadi Al Heno, 18.9.2017; Ga'a Hadhowdhaa, 13.12.2018.

Remarks. This species was recorded from al-Muwaylih, northwestern Saudi Arabia and Taif (Wilms and Böhme, 2007). Wilms and Böhme (2000) suggested to treat *Uromastyx philbyi* as a subspecies of *U. ornata* bending further studies.

Family Gekkonidae
***Bunopus tuberculatus* Blanford, 1874**

Material examined. MZC009, Mada'in Saleh, 20.7.2017; MZC012, Madakheel, 19.7.2017; MZC024 – 25, Al Mendasah, 9.8.2018; MZC029 – 30, Abo Bregaa, 4.8.2017; MZC040, Wadi al Jal a'b, 6.8.2017; MZC044 and 047, Al Mendasah, 9.8.2017; MZC053, Al Khleeal, 15.8.2017; MZC130, Abo Swiseat, 20.9.2013; MZC131, Al Eshash, 22.9.2013.

Remarks. A common species reported from several localities in Saudi Arabia (Arnold, 1986).

***Hemidactylus granosus* Heyden, 1827**

Material examined. MZC033 and 36, Al Mendasah, 5.8.2017; MZC045, Al Mendasah, 9.8.2017.

Remarks. Šmíd et al. (2013) considered all records of *Hemidactylus turcicus* for the Sinai and Saudi Arabian as *H. granosus*. Moravec et al. (2011) showed that *H. turcicus* in its two clades occurs in northern Syria, Turkey, and the circum Mediterranean countries.

***Stenodactylus doriae* (Blanford, 1874)**

Material examined. MZC010 – 11, Mada'in Saleh, 20.7.2017; MZC034 – 35, Uhud farm, 4.8.2017; MZC046, Al Mendasah, 9.8.2017; MZC049, Al Beidha'a, 14.8.2017.

Remarks. This is a rather common species inhabiting sandy areas with a wide distribution range in Arabia (Arnold, 1986).

***Stenodactylus slevini* Haas, 1957**

Material examined. MZC116, Al Khleeal, 28.12.2018.

Remarks. This is a common species inhabiting sandy areas in Arabia (Arnold, 1986).

Family Sphaerodactylidae
***Pristurus rupestris* Blanford, 1874**

Material examined. MZC016, Al Agra'a, 21.7.2017

Remarks. Recently, the status of *Pristurus rupestris* was evaluated on molecular bases, and showed that *P. rupestris* is restricted to eastern Oman, while a western clade, *Pristurus* sp. 1, is distributed from central coastal Oman, through Yemen, Saudi Arabia and north to southern Jordan (Badiane et al., 2014). The northwestern population in Saudi Arabia may be assigned as *Pristurus guweirensis*, however, we will refer to *Pristurus* sp. 1 as *Pristurus rupestris* until further studies.

Family Phyllodactylidae
***Ptyodactylus hasselquistii* (Donndorff, 1798)**

Material examined. AZC009, Al Ula, 19.3.2017; MZC005, Mughera'a, 19.7.2017; MZC015, Jabal Al Ward, 17.7.2017; MZC020, Al Beidha'a, 11.8.2018; MZC027 – 28, Abo Breqa, 4.8.2017; MZC032, Al Mendasah, 5.8.2017; MZC038 – 39, Wadi al Jala'b, 6.8.2017; MZC070, Al Mendasah, 22.9.2017; MZC138, Khaybar, Abo Swiseat, 20.9.2013.

Remarks. This common species inhabits rocky terrains along the mountains of the inland and coastal areas. It was collected from western Saudi Arabia (Farag and Banaja, 1980; Schätti and Gasperetti 1994; Aloufi and Amr, 2015), and from near Hai'l (Alshammari and Ibrahim, 2015).

Family Lacertidae
***Acanthodactylus boskianus* (Daudin, 1802)**

Material examined. MZC013 – 14, Madakheel, 19.7.2017; MZC019, Al Gabah Dam, 11.8.2018; MZC026, Abo Bregaa, 4.8.2017; MZC065 – 66, 23.4.2017; Al Gabah Dam, MZC103 and 105, Wadi Mezaraah, 19.9.2013; MZC141, Ain Alhamah-farms, 19.9.2013; MZC142, Wadi Mezaraah, 19.9.2013.

Remarks. This is a common species known from many localities across Saudi Arabia (Arnold, 1986).

***Acanthodactylus opheodurus* Arnold, 1980**

Material examined. MZC140, Al Nefaed, 18.9.2013.

Remarks. A common species in mixed sandy and gravelly areas, with a wide distribution across the Arabian Peninsula (Arnold, 1986).

***Acanthodactylus schmidti* Haas, 1957**

Material examined. MZC006, Mada'in Saleh, 20.7.2017; MZC077, Al Mu'atadel, 23.9.2017.

Remarks. This sand inhabiting species is quite common in Saudi Arabia (Arnold, 1986).

***Mesalina guttulata* (Lichtenstein, 1823)**

Material examined. MZC004, Moghera, 19.7.2017; MCZ021 – 22, Al Beidha'a, 11.8.2018; MZC113, Al Bedha'a, 26.12.2018.

Remarks. This species prefers gravelly areas, with a wide distribution range (Arnold, 1986).

Family Scincidae
***Ablepharus pannonicus* (Fitzinger, 1824)**

Material examined. MZC003, Al Othaeb, 18.7.2017; MZC018, Al Mendasah, 9.8.2018; MZC031, Al Mendasah, 5.8.2017.

Remarks. This species was first recorded from Asir as *Panaspis wahlbergi* (Al-Jumaily, 1984), however, it appears to be misidentification as discussed by Arnold (1986). It was collected from Abha (Schätti and Gasperetti, 1994). In Arabia, this species have a discontinuous distribution in Kuwait, Oman, United Arab Emirates, and Yemen (Arnold, 1986; Schätti and Gasperetti, 1994)

Our specimens were collected from two localities dominated by farmlands. In Yemen, it found in coffee and banana litter (Schätti, 1989) and date gardens and orchids, especially under dead leaves (Gardner, 2013). This species is widely distributed in Iran reaching Pakistan (Anderson, 1999).

***Chalcides ocellatus* (Forskål, 1775)**

Material examined. AZC005, Al Othaeb, 25.5.2016; MZC002, Al Othaeb, 18.7.2017; MZC043, Al Mendasah, 9.8.2017; MZC054, Al Khleeal, 15.8.2017; MZC057 – 58, Al Othaeb, 18.7.2017; MZC090, Wadi Al Hemdh, 6.5.2018; MZC125 and 133, Ain Al Hamah, 19.9.2013.

Remarks. Schätti and Gasperetti (1994) questioned records by Al-Sadoon (1988) for *Chalcides levitoni* from Al Kharj in central Saudi Arabia, and suggested that these records are *Chalcides ocellatus*. This skink is known from Jeddah (Schätti and Gasperetti, 1994), Tathleeth district, Asir Province (Alqahtani, 2018) and Faid Protected area (Alshammari et al., 2015). Atypical specimens from Magna, Tabuk Province, did not exhibit the typical ocellatus color pattern (Aloufi and Amr, 2015). It was reported from Yanbu al Bahr (Farag and Banaja, 1980).

***Eurylepis taeniolatus* Blyth, 1854** (Fig. 4A)

Material examined. MZC101, Al Rehbah, 19.9.2013; MZC149, Abo Breqa, 28.4.2019.

Remarks. This species is widespread in Pakistan, Afghanistan to northeastern Iran (Schätti and Gasperetti, 1994). Reported from Hai'l and El Khubar (Haas, 1957), Taif and Asir (Arnold, 1986), several localities from southwestern Saudi Arabia and Harrat Rahat (Schätti and Gasperetti, 1994).

***Scincus scincus* (Linnaeus, 1758)**

Material examined. MZC007 – 8, Mada'in Saleh, 20.7.2017; MZC126, Al Nefaed, 20.9.2013, MZC127, Al Eshash, 20.9.2013.

Remarks. This sand inhabiting species is common in Saudi Arabia (Aloufi and Amr, 2015; Alshammari et al., 2015). It was reported from near Al Madinah (Schätti and Gasperetti, 1994), with its range extending across northwest and west Saudi Arabia (Arnold, 1986).

***Trachylepis brevicollis* (Wiegmann, 1837)** (Fig. 4B)

Material examined. MZC082, Wadi Al Hemdh, 18.3.2018.

Observed specimens. Wadi Mallal, 30.3.2017; Wadi Al Aqeeq, 21.9.2018; Al Utemah, 29.10.2018.

Remarks. This species was also reported from Tabuk area (Aloufi and Amr, 2015), northwestern Saudi Arabia (Arnold, 1986; Schätti and Gasperetti, 1994), the area of Riyadh (Al-Sadoon, 1988). This is a viviparous species; one specimens contained four embryos.

Family Varanidae
***Varanus griseus* (Daudin, 1803)** (Fig. 4C)

Material examined. AZC007, Mada'in Saleh, 5.5.2017.

Observed specimens. Wadi Mezaraah, 19.9.2013; Wadi Al Jazel, 18.3.2017; Wadi Al Heno, 18.9.2017.

Remarks. The Desert Monitor is common in various habitats of Saudi Arabia (Haas, 1957; Schätti and Gasperetti, 1994; Al-Shammari, 2012). It is associated with both open areas of sand and gravel.

Family Boidae
***Eryx jayakari* Boulenger, 1888** (Fig. 4D)

Observed specimens. Wadi Al Heno, 17.9.2016. Al Rajea, 30.3.2018.

Remarks. Most of previous records of this species are in central and eastern Saudi Arabia (Gasperetti, 1988) with additional records from Ha'il (Alshammari et al., 2017).

Family Leptotyphlopidae
***Myriopholis macrorhyncha* (Jan, 1860)**

Material examined. MZC059, Al Jafr, 14.7.2017.

Observed specimens. Abo Kabeer, 22.3.2017; Hazrah, 14.10.2017.

Remarks. Previously recorded from around Jeddah and farmlands in central Saudi Arabia (Gasperetti, 1988). This species is widespread in humid areas of West Africa to western Asia. It is believed that its occurrence in the Arabian Peninsula and Saudi Arabia was introduced through agriculture, since this species is not arid-adapted

Fig. 4. Reptiles of Al Madinah Province: A, *Eurylepis taeniolatus*; B, *Trachylepis brevicollis*; C, *Varanus griseus*; D, *Eryx jayakari* (photo by A. Al Salman); E, *Platyceps elagantissimus* (photo by M. Al Sulimi); F, *Telescopus dhara* (photo by A. Al Salman).

(Egan, 2007). Harza area enjoys humid habits with swamps and private gardens.

Family Typhlopidae
***Indotyphlops braminus* (Daudin, 1803)**

Material examined. MZC114, Abo Bereqa, 23.3.2017.

Remarks. This Asian species has been recorded from Jeddah, around Riyadh, Hufuf and Abha (Gasperetti, 1988) and from Yanbu (Farag and Banaja, 1980). The present record expands its distribution into western Saudi Arabia. This is a parthenogenic species associated with agriculture and gardens, where animals can survive in humid seedling pots.

Family Lamprophiidae
***Atractaspis engaddensis* Haas, 1950**

Material examined. MZC060, Alab, 4.6.2017; MZC063, Al Mofarehat, 30.4.2017; AZC018, Erdah, 15.2.2019.

Observed specimens. Sherawan, 4.4.2017; Tasha, 23.6.2017; Alays-Al Shubahah, 2.4.2018; Hazrah, 17.9.2018 and 1.2.2019; Alab, 21.3.2019; Wadi Reem, 7.3.2019.

Remarks. This species is distributed along western and northern central Saudi Arabia (Gasperetti, 1988; Al-shammari et al. (2017). Reported from Jabel Werjan (Gasperetti, 1988).

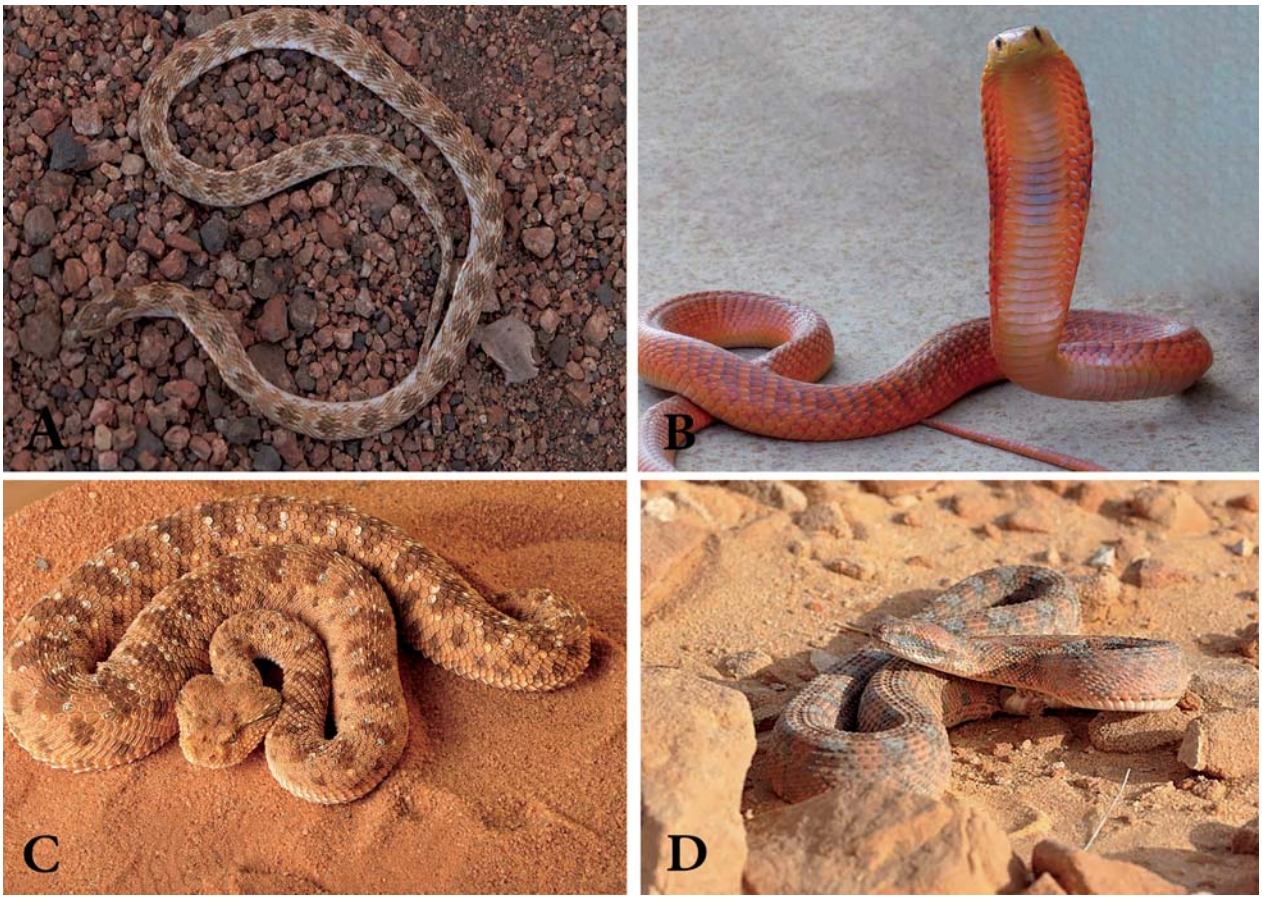

Fig. 5. Reptiles of Al Madinah Province: A, *Lytorhynchus diadema*; B, *Naja arabica* (photo by M. Al Mishini); C, *Cerastes gasperetti*; D, *Echis coloratus* (photo by M. Al Sulimi).

Family Colubridae
***Lytorhynchus diadema* (Duméril, Bibron et Duméril, 1854)** (Fig. 5A)

Material examined. MZC071, Al Mendasah, 22.9.2017.

Remarks. This sand-dwelling species is widespread across southwestern, central and eastern Saudi Arabia. It was reported near Yanbu' (Gasperetti, 1988). Collected specimens are in accordance to description given by Gasperetti (1988) and Alshammari et al. (2017) with prominent brown crown on the head and pale buff or cream color above.

***Platyceps elagantissimus* (Günther, 1878)** (Fig. 4E)

Material examined. AZC001, Qaraqer, 22.6.2017.

Observed specimens. Al Utemah, 4.6.2016.

Remarks. This species has a wide distribution along western and north central Saudi Arabia (Gasperetti, 1988). From Al Madenah Province, it was recorded from Ynabu' (Farag and Banaja, 1980), Madian Saleh, Mahd adh Dhahab and Al Ays (Gasperetti, 1988). From Ha'il region, it was collected from sandy areas near agricultural fields (Alshammari et al., 2017).

***Platyceps sinai* (Schmidt et Marx, 1956)** (Fig. 6B)

Material examined. MZC067, Dhabuah, 14.5.2017.

Observed specimens. Al Fegrah, 20.8.2018; Alab, 23.3.2019.

Remarks. This is the first record of this species to the Arabian Peninsula. Originally, this species was described under the genus *Lytorhynchus* due to the presence of a triangular rostrum (Schmidt and Marx, 1956). This racer is known from southern and eastern Sinai, southern Palestine and southern Jordan (Amr and Disi, 2011). It was found in a dray wadi surrounded by granite mountains at an altitude of 800 m a.s.l..

Pholidosis. The number of cross band is 68 including one through the eyes, ventral scales = 197, caudal scales = 94, midbody scales = 16. Snout-vent = 182 mm, tail length = 59 mm.

***Platyceps rhodarchis* (Jan, 1865)**

Material examined. AZC012, Mada'in Saleh, 19.3.2017; MZC064 and150, Taibah University campus, 2.3.2017 and 4.5.2019; MZC087, Al Anabes, 16.4.2018; MZC088, Jabal Um Khaimah, 18.4.2018; MZC089, Al Khaef, 21.4.2018; MZC064, Taibah University campus, 4.5.2019.

Observed specimens. Alab, 27.2.2017; Wadi Abo Araj, 28.11.2018; Wadi Khadhrah, 2.6.2018; Al Salam, 5.10.2016. Al Hejr, 24.11.2016. Al Othaeb, 5.6.2017; Al Harah Al Garbiah, 1.7.2016. Al Har, 3.11.2017; Jabal Udqus, 15.3.2018; Abo Brega, 11.5.2018; Al Fegrah, 20.11.2018; Abyar Al Mashi, 9.12.2018; Jabal Ae'r, 11.11.2018.

Remarks. This is the most common colubrid observed during this study. It was reported from several localities in western and central Saudi Arabia (Farag and Banaja, 1980; Gasperetti, 1988) and from of Ha'il Province (Alshammari et al., 2017). Previously recorded from Al Madinah and Bir Ali (Gasperetti, 1988).

***Spalerosophis diadema cliffordii* (Schlegel, 1837)**

Material examined. MZC001, Al Othaeb, 18.7.2017; MZC080, Al Utemah, 27.2.2018.

Observed specimens. Al Eshash, 20.9.2013; Alab, 20.5.2017; Qaraqer, 23.7.2017; Alab, 19.7.2018; Al Ays, 11.7.2017; Al Jurf, 8.11.2018; Wadi Nkhala, 27.2.2019.

Remarks. This a rather common species inhabiting rocky enclaves in western, eastern and central Saudi Arabia (Farag and Banaja, 1980; Gasperetti, 1988). Clifford's Diadem Snake was found also around farms and many were killed by the locals. It is thought to be poisonous owing its large size. Alshammari et al. (2017) reported its occurrence near cultivated fields near the sandy areas of the An-Nufud desert.

***Telescopus dhara* (Forsskål, 1775)** (Fig. 5E)

Material examined. MZC115, Hazrah, 6.2.2019.

Observed specimens. Habt, 26.8.2016. Alab, 9.11.2017; Mughera'a, 10.4.2018; Dhalamah, 6.1.2019.

Remarks. The Arabian Cat Snake is known from western, central and northern Saudi Arabia (Gasperetti, 1988; Alshammari et al., 2017). It prefers rocky areas with scattered shrubs and trees.

***Rhynchocalamus melanocephalus* (Jan, 1862)**
(Fig. 6A)

Observed specimens. Mughera'a, 2.3.2017; Jabal Al Ward, 17.6.2017.

Remarks. This is the first record for the Palestine Black-headed Snake in Saudi Arabia and the Arabian Peninsula. Our records are based on two photographed specimens. For long, its occurrence was expected (Gasperetti, 1988). This species is known from Jordan, Palestine, Syria, Lebanon and Sinai (Baha El Din, 1994; Amr and Disi, 2011; Šmíd et al., 2015).

Family Psammophiidae
***Psammophis schokari* (Forsskål, 1775)**

Material examined. AZC002, Al Othaeb, 25.5.2016; MZC042, Al Mendasah, 9.8.2017; MZC061, Al Jurf, 17.5.2017; MZC076, Shajwa, 26.9.2017; MZC147, Abo Swiseat, 20.9.2013; MZC146, Al Eshash, 22.9.2013; MZC148, Al Faga'ali, 25.4.2019.

Observed specimens. Al Fegrah, 23.4.2018; Khaybar, 7.7.2018; Wadi Khadhrah, 2.9.2018; Harat Awieredh, 23.3.2017; Abo Bereqa, 7.6.2017; Al Hejr, 18.7.2017; Wadi Al Hemdh, 9.4.2018; Al Sherebat farms, 18.11.2018.

Remarks. One of the most common snakes encountered during this study. It was reported from southwestern, central and eastern Saudi Arabia (Farag and Banaja, 1980; Gasperetti, 1988, Schätti and Gasperetti 1994; Alshammari et al., 2017). Reported from Mada'in Saleh (Gasperetti, 1988). This snake was found in sand areas, wadi beds and rocky areas. Based on cluster analysis, Marx (1988) showed that three Arabian groups of *P. schokari* occurs in the Arabian Peninsula; western, central and eastern.

***Psammophis sibilans* (Linnaeus, 1758)** (Fig. 6C – E)

Material examined. MZC072, Al Oyon, 23.9.2017.

Remarks. This is the first record for the African Beauty Snake in Saudi Arabia and the Arabian Peninsula. This species is known from eastern Egypt, Eritrea, Ethiopia and Somalia (Baha El Din, 1994). Our female specimen has the following pholidosis: ventral scales = 171, caudal scales = 94, 8 upper labials, 4th and 5th in contact to the eye. Snout-vent = 493 mm, tail length = 231 mm. Ventral and caudal scales for females from the western group of *P. schokari* ranged from 171 – 192 and 144 – 167, while 162 – 171 and 103 – 115 for *P. sibilans*, respectively (Marx, 1958, 1988).

***Rhagerhis moilensis* (Reuss, 1834)**

Material examined. AZC003, Wadi Al Jazel, 22.6.2017; AZC012, Al Behaethah, 2.3.2019

Observed specimens. Shanaseer, 18.4.2017; Hazrah village, 24.11.2017; Wadi Al Har, 9.9.2018; Al Mofarehat, 30.3.2019.

Remarks. This a common species associated with extreme arid areas in the Middle East. It was recorded from western, northern and central Saudi Arabia (Gasperetti, 1988; Al-Sadoon et al., 2017; Alshammari et al., 2017). From Al Madinah Province, it was reported from Jabel Sayid and Uqlat as Sugur (Gasperetti, 1988).

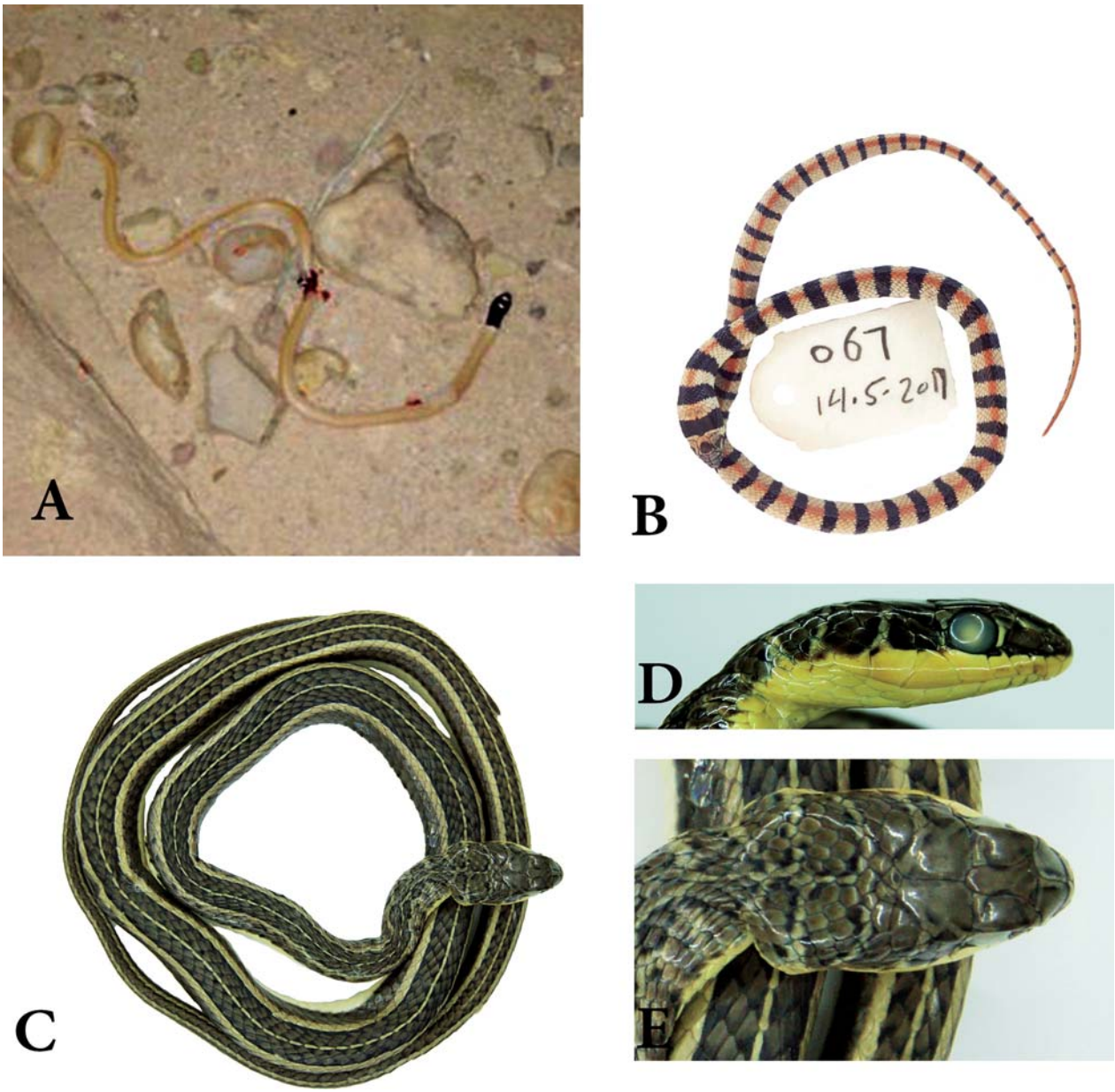

Fig. 6. Reptiles of Al Madinah Province: A, *Rhynchocalamus melanocephalus*; B, *Platyceps sinai*; C, *Psammophis sibilans*; D, lateral view of *Psammophis sibilans*; E, head shields of *Psammophis sibilans*.

Family Elapidae

***Naja arabica* Scortecci, 1932** (Fig. 5B)

Material examined. MZC079, Alab, 23.2.2018.

Observed specimens. Dhalamah, 6.1.2019; Jabal Udqus, 25.3.2016. Al Fegrah, 15.10.2016. Hazrah, 15.5.2017; Far'a Al Raddadi, 19.5.2017; Alab, 4.6.2017; Wadi Al Onaieq, 13.2.2018; Far'a Al Raddadi, 19.5.2017; Al Thajah, 1.3.2018; Wadi Al Onaieq, 1.1.2019.

Remarks. This is a rather common species in southwestern Saudi Arabia (Gasperetti, 1988). The oldest record of the Arabian Cobra from Al Madena was reported by Anderson (1898), however, Joger (1984) doubted this record. The materials presented here shows that *N. arabica* is common in Al Madinah Province and was found in wadi systems with scattered vegetation as well as mountains. Our records expands the known distribution range of the Arabian Cobra further northwest. Altitude of

localities indicated ranges from 492 m a.s.l. at Alab to 2067 m a.s.l. at Jabal Udqus. Colour of collected and observed specimens varied from yellow body with black head and neck to entirely golden yellow or red.

***Walterinnesia aegyptia* Lataste, 1887**

Observed specimens. Suwaydrah, 1.5.2017; Wadi Khadhrah, 14.3.2018; Alab, 21.5.2016. Al Ays, 24.9.2016. Hazrah, 7.2.2017; Hazrah, 22.8.2017; Al Nekhael, 16.9.2017; Wadi Al Khung, 14.3.2018; Wadi Reem, 1.11.2018; Far'a Alradadi, 8.1.2019.

Remarks. The Black Desert Cobra occurs in northeast, northwest and central Saudi Arabia (Gasperetti, 1988; Aloufi and Amr, 2015). Nilson and Rastegar-Pouyani (2007) separated the eastern populations of *Walterinnesia* in Iran, Iraq and eastern Saudi Arabia under the name *Walterinnesia morgani* and considered *W. aegyptia* as the valid taxon in Egypt, Palestine, western Saudi Arabia, and Jordan. This species seems to be quite common in Al Medina Al Munawwarah Province especially around plantations and gardens. Reported from NW Khaybar (Gasperetti, 1976).

Family Viperidae

***Cerastes gasperetti* Leviton et Anderson, 1967**
(Fig. 5C)

Material examined. AZC008, Mada'in Saleh, 20.5.2015; MZC017, Mada'in Saleh, 20.7.2017; MZC145, Al Nefaed, 18.9.2013; MZC144, Al Eshash, 22.9.2013.

Observed specimens. Fadhla, 9.3.2018.

Remarks. The Arabian Horned Viper is widespread across the Arabian Peninsula inhabiting sand-covered areas (Gasperetti, 1988; Schätti and Gasperetti, 1994; Aloufi and Amr, 2015). From Al Madinah Province, it was reported from several localities in Mahd adh Dhahab (Gasperetti, 1988).

***Echis coloratus* Günther, 1878** (Fig. 5D)

Material examined. AZC004, Jabal Al Ward, 8.10.2016; MZC041, Wadi al Jala'b, 6.8.2017; MZC062, Alab, 4.6.2017; MZC073, Far'a Alradadi, 19.9.2017; MZC084, Al Sumaimah, 23.3.2018; MZC085, Sulailat Juhainah, 27.3.2018.

Observed specimens. Al Fegrah, 27.7.2017 and 22.8.2018; Al Bedha'a, 1.10.2016. Al Ays, 14.4.2017; Far'a Alradadi, 27.7.2017; Alab, 1.8.2017; Al Othaeb, 15.8.2017; Shanaseer, 2.9.2018; Al Utema, 8.10.2018.

Remarks. This a rather common venomous snakes known across western and central Saudi Arabia (Gasperetti, 1988). The Burton's Carpet Viper is associated with steep, dry rocky hillsides of mountains. It is a highly persecuted viper whereas many photos of killed *E. coloratus* are communicated through the social media. It was reported from several localities around Al Madinah Province including Jabel Abyad, Jabel Sayid, Mahd adh Dhahab and Yanbu an Nakhl (Gasperetti, 1988).

DISCUSSION

Forty four species were recorded from Al Madinah Province comprising about 35% of the total known species of amphibian and reptiles in Saudi Arabia. The herpetofauna of Al Madinah Province is high compared to those of Turaif, Hai'l, and Tabuk provinces with 27, 31, and 32 species, respectively (Al-Shammari, 2012; Aloufi and Amr, 2015; Al-Sadoon et al., 2017; Alshammari et al., 2017). The herpetofauna of Al Madinah is heterogeneous consisting of several faunal elements (African, Arabian, Levantine and oriental). *Rhynchocalamus melanocephalus* is a Levantine species with records in Sinai (Šmíd et al., 2015), reaching its most southern range of distribution in Al Madinah Province. The genus *Rhynchocalamus* is represented in the Arabian Peninsula by *R. arabicus*, known only from Yemen and Oman (Šmíd et al., 2015). *Phrynocephalus nejdensis* is an example of oriental species, whereas species of the genus *Phrynocephalus* have a distribution extending from Pakistan and Iran reaching the Arabian Peninsula.

The presence of *P. sibilans* is of special interest, since this African species is known along the eastern coast of the Red Sea. This record may represents a relict population of the African sibilans. The collision of the landmasses of Africa and Arabia through the Gomphoterium land bridge, south from the Sinai Peninsula about 18 – 15 m.y.a. may have caused secondary colonization of Arabia by African elements (Melnikov and Melnikova, 2013). Other snakes of African origin reported from Arabia include *A. engaddensis* and *N. arabica*. Distribution range for other species known from southwestern Saudi Arabia expanded further north (i.e., *E. ehrenbergii* and *A. adramitanus*). We encountered other rare species with patchy distribution such as *E. taeniolatus* and *A. pannonicus*, whereas both are associated with agricultural areas and gardens.

In this study, we report additional three species of snakes to the herpetofauna of Saudi Arabia (*P. sinai*, *P. sibilans*, and *R. melanocephalus*). Further studies on the herpetofauna of Saudi Arabia is urgently required in the southwestern part of the country, where other African species may occur.

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