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ZOOGEOGRAPHY OF LIZARDS FAUNA FROM CENTRAL AND SOUTHERN IRAQ WITH A CHECKLIST OF IRAQI LIZARD'S FAUNA

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There are five terrestrial biomes found in Palearctic realm of Iraq: Temperate broadleaf and mixed forests; Temperate grasslands, Savanas and shrublands; Flooded grasslands and Savannas; Mediterranean forests, woodlands and scrub; deserts and xeric shrublands. The presence of these ecozones resulted in a considerable heterogeneity of the herpetofauna of Iraq. With considering lizards fauna, we collected 400 lizard specimens that classified into 18 species, 11genera and five families, were distributed throughout central and southern Iraq and their zoogeographical affinities about: 44.44% Palearictic, 33.33% Arabian and 22.22% Saharo-Sindian.

Keywords: Iraqi Lizards Fauna, Zoogeography, Central and Southern Iraq.

INTRODUCTION

The herpetofauna of Iraq is the least known compared to that of the surrounding countries. Most previous studies were based on short-termed investigations and restricted to limited parts of Iraq. Some basic collecting has been carried out and check-lists of species are available (e.g., Boulenger, 1920; Schmidt, 1939; Allouse, 1955a; Khalaf, 1959; Nader and Jawdat, 1976). The Biological Research Center collected and studied reptiles, and published a monograph on the Gekkonidae of Iraq, but few other studies have been undertaken, and the status, distribution and habits of most species are poorly known (Scott, 1995). The present study tried to provide an updated list of lizards that recorded from Iraq including notes on the zoogeographical affinities of the taxa (Table 1).

An ecozone is the broadest biogeographic division of the Earth land surface, based on distributional patterns of terrestrial organisms. Ecozones delineate large areas of the Earth surface with organisms that have been evolving in relative isolation over long periods of time, separated from one another by geographic features, such as ocean, broad deserts, or high mountain ranges that constitute barriers to migration. As such, ecozone designations are used to indicate general groupings of organisms based on their shared biogeography. Eight ecozones according to the World Wildlife Fund (WWF, 2006; 2014): Nearctic, Palearctic, Afrotropic, Indomalaya, Australasia, Neotropic, Oceania, and Antractic. The Palearctic, physically is the largest of the eight ecozones that constituting the Earth's surface, it includes the terrestrial ecoregion of Europe, Asia, north of the Himalaya foothills, northern Africa, and the northern and central parts of the Arabian Peninsula. The Palearctic realm consists of five smaller subregions: the European Siberian; the Mediterranean Basin; the Sahara and Arabian Deserts; Western and Central Asian; and China and Japan. Two major rivers in the subregion Western Asia of the Palaeartic are the Tigris, rising in the Taurus Mountains of eastern Turkey and the Euphrates, rising in the mountains of Anatolia. Between these rivers is an ancient area called Mesopotamia, which was also known as the Fertile Crescent. The two rivers join together near Al Qurna in southern Iraq and flow to the Persian Gulf (Eric et al,. 1995; Schultz, 2002).

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TABLE 1. List of Collected Lizards with Their Localities and Zoogeographical Affinities Based on Data from Arnold (1986), Joger (1987), Werner (1987, 1988), Lamarche and Clement (1988), Gasperetti (1988), and Schatti and Gasperetti (1994)

Taxon (N = 398)	Locality	Zoogeographical affinity
Gekkonidae		
Cyrtopodion scabrum (Heyden, 1827) (RUZM GC 165-227); N = 63	Babylon, Al-Najaf, Al-Qadissiya, Wasit, Missan, Dhi-Qar, Al-Muthana, Al-Basra	Arabian
Hemidactylus flaviviridis Ruppel, 1840 (RZUM GH 11.3-22); N = 20	Babylon, Al-Najaf, Al-Qadissiya, Wasit, Missan, Dhi-Qar, Al-Muthana, Al-Basra	Palearctic
Hemidactylus turcicus (Linnaeus, 1758) (RZUM GH 12.1); N = 1	Al-Najaf	Palearctic
Hemidactylus persicus Anderson, 1872 (RZUM GH 10.4-7); N = 4	Babylon, Al-Nagaf, Al-Basra	Palearctic
Stenodactylus doriae (Blanford, 1872) (RZUM SS 10.1-24); N = 24	Al-Najaf	Arabian
Stenodactylus affinis (Murray, 1884) (RZUM SS 20.1-16); N = 16	Al-Najaf, Dhi-Qar	Arabian
Lacertidae		
Acanthodactylus orientalis Angel, 1936 (RZUM LA. 852-853); N = 2	Dhi-Qar	Arabian
Acanthodactylus robustus Werner, 1929 (RZUM LA. 854-855); N = 2	Dhi-Qar	Arabian
Acanthodactylus grandis Haas, 1957(RZUM 856); N = 1	Dhi-Qar	Arabian
Acanthodactylus scutellatus Boulenger, 1909 (RZUM LA. 857-873); N = 17	Al-Muthana	Saharo-Sindian
Ophisops elegans elegans Menetries, 1832 (RZUM LO 10.277-346); N = 70	Babylon, Al-Najaf, Al-Qadissiya Al-Basra	Palearctic
Scincidae		
Trachylepis vittata (Olivier, 1804) (RZUM SM 12.41-49); N = 9	Babylon	Saharo-Sindian (Arabian)
Trachylepis septemtaeniata (Reuss, 1834) (RZUM SM 11.17-62); N = 46	Babylon, Al-Najaf, Dhi-Qar, Al-Qadissiya, Al-Muthana, Al-Basra	Palearctic
Ablepharus pannonicus Fitzinger, 1823 (RUZM SA 20.73-77, 79, 81-84, 109-121); N = 23	Babylon, Al-Basra	Palearctic
Agamidae		
Agaminae		
Phrynocephalus maculatus maculatus Anderson, 1872(RZUM AP 10.16-17); N = 2	Al-Najaf	Palearctic
Trapelus ruderatus ruderatus (Blanford, 1881) (RZUM AT 12.5-51); N = 47	Al-Najaf, Karbala, Dhi-Qar, Al-Basra	Palearctic
Uromastycinae		
Uromastyx aegyptius Forsscål, 1775 (RZUM UU 1.1-8) + 36 preserved in Iraq); N = 44	Al-Najaf, Karbala, Wasit, Missan, Al-Muthana, Al-Basra	Saharo-Sindian
Varanidae		
Varanus griseus (Daudin, 1803) (RZUM VV 1.1-9); N = 9	Babylon, Al-Najaf, Karbala	Saharo-Sindian

BIOGEOGRAPHY OF IRAQ

Iraq is a country in Southwestern Asia that borders Turkey to the north, Iran to the east, Kuwait to the southeast, Saudi Arabia to the southwest, Jordan to the west, and Syria to the northwest. Iraq has a narrow section of coastline measuring 58 km on the northern Persian Gulf and its territory encompasses the Mesopotamian Alluvial Plain, the northwestern end of the Zagros mountain range, and the eastern part of the Syrian Desert. Two major rivers, the Tigris and Euphrates, run south through the center of Iraq and flow into the Shatt al-Arab near the Persian Gulf. Theses Rivers provide Iraq with significant amounts of fertile land (Malinowski, 2002; Al-Lami, 2012; Buchman et al., 2011).

Iraq has two marked seasons, a dry and intensely hot summer and a relatively cold, wet winter, with spring and autumn as short transitional periods between the two. The climate is a typical semi-arid continental type, chiefly characterized by wide diurnal and annual ranges in temperature. The maximum recorded temperature is 50°C, while temperatures of 45°C are not unusual occurrences in June, July, and August. The minimum recorded temperature is –11°C in January. The diurnal range of

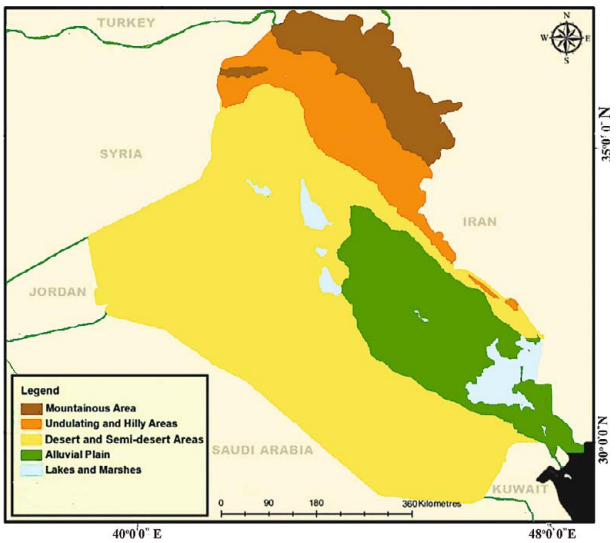

Fig. 1. Map of Iraq shows general geographical regions that hold relatively different geographical, climate, and habitat landscape regions.

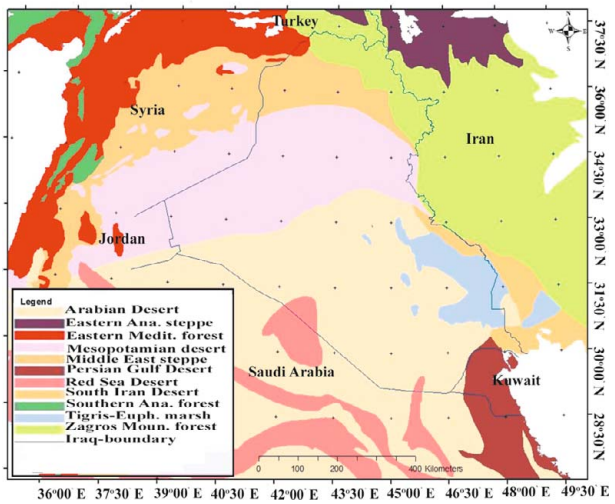

Fig. 2. Map shows the main terrestrial ecoregions of Iraq.

temperature often exceeds 15 – 20°C, with daily temperatures generally ranging from 20 to 40°C in summer and from 5 to 15°C in winter. The relative humidity is usually very low, especially in summer. The average annual rainfall ranges from about 100 mm in the south to 300 mm on the northern plains and 1000 mm in the mountains, but there are wide variations between years.

According to (Malinowski, 2002; Ministry of Environment, 2010; Buchman et al., 2011), Iraq can be classified basically into four general geographical regions that hold relatively different geographical, climate, and habitat landscape regions (Fig. 1).

1. Northern landscape, habitat is the highlands, mountainous areas that exist mainly in the northern and northeastern parts of the country. It includes scrub and woodlands in the mountains and foothills; inland predominantly cliffs and rocky slopes; cliffs, and boulders. In general, the area features a wide array of forest layers where more light and heat can penetrate to lower canopy forest plants. Oak trees are a major component of this landscape in Iraq.

2. Main landscape habitat in Iraq is the undulated and hilly landscape habitat that is considered as a transitional graduation between the upper habitat region (the mountains) and the next one (the desert areas). It is located at the northern parts of Middle Iraq and the range continues to the eastern parts of the country.

3. The desert habitat landscape represents the majority of the area of Iraq, and extends mainly along the western parts of Iraq. However, there are some deserts above the area between the rivers Tigris and Euphrates, and above the areas to the east of the Tigris. This habitat harbors a wide spectrum of flora and fauna that is adapted to the extremely dry and hot conditions in Iraq, in addition to the shortage of the precipitation especially over the current decades.

4. The Mesopotamian marshlands and the alluvial plain: this landscape exists across the middle and eastern parts of southern Iraq. This landscape is characterized of being vast but plain areas that hold scattered waterbodies, either permanent or temporary, especially at the southern parts of this region where the marshes of Lower Mesopotamia are.

There are five terrestrial biomes found in Palearictic realm of Iraq: Temperate broadleaf and mixed forests; Temperate grasslands, Savanas and shrublands; Flooded grasslands and Savannas; Mediterranean forests, woodlands and scrub; Deserts and xeric shrublands. Iraq includes eleven main terrestrial ecoregions (Fig. 2), some of which can be classified as a key ecoregion that covers larger areas of the country, we excluded the ecoregions that are of very weak influence in the Iraqi habitats, and there is no large representation of the elements characterizing these ecoregions in Iraq and focusing only on that kinds of ecoregions that can be found on ground, and this is based on the existing information (Guest, 1968; Malinowski, 2002). These ecoregions are:

1) Tigris – Euphrates alluvial salt marsh;

2) Arabian Desert and East Sahara-Arabian xeric shrublands;

3) Mesopotamian shrub desert;

4) Middle East steppe;

5) Eastern Mediterranean conifer-scerophyllous-broadleaf forest;

6) Red Sea Nubo-Sindian tropical desert and semi-desert;
7) South Iran Nubo-Sindian desert and semi-desert;
8) Gulf desert and semi-desert;
9) Zagros Mountains forest steppe.

The Freshwater and marine ecoregions of the world are also represented in Iraq including three different freshwater ecoregions (Arabian Interior, Lower Tigris and Euphrates, Upper Tigris and Euphrates), and one marine ecoregion (Persian Gulf), which is part of the Western Indo-Pacific Realm. The presence of these ecozones resulted in a considerable heterogeneity of the herpetofauna of Iraq. The complex mosaic of high mountains, steep slopes and desert has led to the formation of narrow borders or overlap between individual ecozones and causes mixing of floral and faunal elements with different biogeographical affinities in individual localities (Amr and Garstecki, 2001).

The peculiar bio-geographical situation of the lower Mesopotamia Marshlands provides a kind of bridge between the African region (the so-called "Arabic region of the African plate") and Eurasian region (e.g., through the Miocene-Pliocene-Pleistocene fusion of Angara with Paleoeurope). This situation explains the presence of many endemic species in the Iraqi territory as well as the high ecological value of the lower Mesopotamia wetlands, both at regional and international level (Scott, 1995; Nicholson and Clark, 2002; Evans, 2004).

Within these ecozones there are apparent declines and extinction of herpetofauna at a local community level creating a requirement for knowledge of distribution and presence data. The causes of these declines may include habitat loss and degradation, unsustainable use, invasive species, environmental pollution, disease and global climate change (Sindaco et al., 1995; Disi et al., 1999). Habitat loss appears to be the most serious threat to the herpetofauna of Iraq. A variety of herpetological surveys and studies have been conducted in neighboring countries on species that occur in Iraq.

Family Agamidae

Phrynocephalus maculatus maculatus Anderson, 1872. Type locality: Doha Dhalum, Saudi Arabia. It distributes from southern Europe and Southwest Asia (including the Arabian Peninsula and northern India) through Central and Middle Asia to East Asia (northern China and Mongolia). It is listed for Iraq by (Smith, 1935; Khalaf, 1959 and Wermuth, 1967; Leviton et al., 1992 Anderson, 1999).

Trapelus ruderatus ruderatus (Blanford, 1881). Type locality: Persia and northern Arabia. Essentially a species of the Iranian Plateau, northeastern Jordan. These animals are most often seen in open stony places, and on rocky alluvium in overgrazed Artemisia steppe (Leviton et al., 1992; Anderson, 1999; Rastegar-Pouyani, 2000; Rastegar-Pouyani et al., 2007).

Uromastyx aegyptius Forsscål, 1775. It distributes throughout North Africa (from Algeria through the Sahara to northern Egypt); southwest Asia (Israel, Sinai, Peninsula, northern Saudi Arabia and along Persian Gulf coast, Iraq, Kuwait, southeastern Iran) (Leviton et al., 1992; Moody, 1987; Anderson, 1999).

Family Gekkonidae

Hemidactylus flaviviridis Ruppel, 1840. Type locality: Insel Massaua [= Massawa, Somalia]. Wide ranging in the Palearctic region (always in association with man) from the northeast African and Arabian shores of the red sea and around the coasts of Arabia (Iraq, Bahrain) and coastal southern Iran, across Pakistan, eastern Afghanistan and northern India to West Bengal and south to the vicinity of Bombay (Leviton et al., 1992; Khan and Assung, 2002; Carranza and Arnold, 2012).

Hemidactylus turcicus (Linnaeus, 1758). (Type locality: in Oriente [restricted to Asiatic Turkey by K. Schmidt, 1953]). It extends from Morocco to Egypt and south through Somalia to northern Kenya; the coastal areas of the Mediterranean and Red Seas, through Southwest Asia (Arabian Peninsula and Iraq) to Sind. They have been collected primarily in port towns of the Persian Gulf in Iran, although there are scattered inland records as it also the case in Turkey, Jordan, and Iraq, but all these localities lie along trade routes (Leviton et al., 1992; Anderson, 1999; Khan and Assung, 2002; Carranza and Arnold, 2012).

Hemidactylus persicus Anderson, 1872. Type locality: Iran, no exact locality given, probably Bushire, fide, Blanford, 1876, Shiraz, fide M, Smith, 1935. It distributes through Coastal eastern Arabia North to southern Iran and Iraq, East to Sind and Waziristan, Pakistan, on the rocky hills that are almost completely denuded of vegetation and the seasonal streams long since dry, although some water remains in sinkholes and small caverns in gypsum formations (Leviton et al., 1992; Anderson, 1999; Vyas et al., 2006; Carranza and Arnold, 2012).

Cyrtopodion scabrum (Heyden, 1827). Type locality: near Tor, Sinai Peninsula, Egypt, and Abyssinian Coast. It distributes through the Countries of the eastern Mediterranean (Egypt, the Balkans) east through Southwest Asia across the North Arabian Desert, through Pakistan to northern India and the flanks of the Himalayas. North to the southern republics of Central Asia (Leviton et al., 1992; Anderson, 1999).

Stenodactylus affinis (Murray, 1884). Type locality: Tanjistan (just south of Bushire), Iran. The specimens recorded by Schmidt (1955) were collected under stones in a cultivated field, and another specimens were collected at night on unpaved road running through flat terrain of salty alluvium. This species known only from southeastern Khuzestan and southern Fars Provinces, Iran, southeastern and central Iraq (Afrasiab, 1989; Leviton et al., 1992; Anderson, 1999; Fujita and Papenfuss, 2011).

Stenodactylus doriae Blanford, 1874. Type locality: one [day] march from Bandar Abbas on road to Karman, Iran. Widespread in the Arabian Peninsula, Southern Israel, north to Syria, Jordan and Iraq. The coastal plain of Fars and Kerman Provinces and the lower Mesopotamian Plain in Khuzestan, Iran (Leviton et al., 1992; Anderson, 1999; Fujita and Papenfuss, 2011).

Family Lacertidae

Ophisops elegans elegans Menestries, 1832. Type locality: vicinity of Baku, Caucasus, USSR. The variously differentiated populations extend from Bosphorus through Southwest Asia through Iran, South to the Sinai Peninsula and Red Sea coast of northern Egypt, Jordan, Iraq, and north to Transcaucasian USSR (Khalaf, 1959; Leviton et al., 1992; Anderson, 1999).

Acanthodactylus orientalis Angel, 1936. Type locality: syntypes from Palmyre, Tall Abiad, Ain Zahra, Deir ez Zor). *Acanthodactylus tristrami orientalis* K. Schmidt. 1939. Type locality: Haditha, Iraq). It distributed throughout Western and central Iraq, eastern Syria (Khalaf, 1959; Leviton et al., 1992).

Acanthodactylus robustus F. Werner, 1929. Type locality: Syrian desert near Bir Molusi [= Meloza = Kara], Iraq. It widespread throughout Southwestern Iraq, Jordan, Syria, northern Saudi Arabia (Khalaf, 1959; Leviton et al., 1992).

Acanthodactylus grandis Haas, 1957. Type locality: Jerud and Ataibe, East of Damascus, and Khan Agach between Damascus and Kutaife, Syria. *Acanthodactylus fraseri* Boulenger, 1918a. Type locality: Zobeya [= Az Zubayr] 30°23′ N 47°43′ E, Shariba, Lower Mesopotamia [= Iraq]). It spreads throughout Iraq, southwestern Iran, Jordan, eastern Lebanon, northern Saudi Arabia, Syria (Khalaf, 1959; Leviton et al., 1992; Anderson, 1999).

Acanthodactylus scutellatus Boulenger, 1909. Type locality: Nafud as Sirr [26°11′ N 44°19′ E] near Riyadh, Saudi Arabia. Known from two widely separated localities in Saudi Arabia, from the Riyadh ara and from Al Jawf, in the northwest (Leviton et al., 1992; Anderson, 1999).

Family Scincidae

Trachylepis vittata (Olivier, 1804). Type locality: sands of Rosetta [= Rashid], Egypt. It extends throughout Mediterranean coast of North Africa, from Algeria through Egypt. Cyprus and Rhodes; Turkey, Lebanon, Israel, Syria, Jordan, Iraq, and western Iran (Leviton et al., 1992; Anderson, 1999; Rastegar-Pouyani and Fattahi, 2014).

Trachylepis septemtaeniata (Reuss, 1834). Type locality: Massawa, Eritrea, Euthiopia, which until 2003 (Mausfeld and Schmitz, 2003) was considered as subspecies of *T. aurata*. It extends throughout Iraq (*T. aurata* in the north and *T. septemtaeniata* at the lower elevations of the Tigris – Euphrates Valley. Also it found in northern and southern Iran, northeastern Saudi Arabia (Al Hasa south to Hofuf), Bahrain, northern Oman, coastal Ethiopia (Massawa), southern regions of the Armenia, Nakhichevan, southern Turkmen, and Uzbekistan.

Ablepharus pannonicus Fitzinger, 1823. Type locality: Bussora [= Basra], Iraq. It occurs in Southeastern Iraq, Kuwait, northern and western Iran, Turkestan to northwest India, northern Oman, southwestern Saudi Arabia, northern Yemen (Leviton, 1992; Anderson, 1999).

Family Varanidae

Varanus griseus griseus (Daudin, 1803). Type locality: Egypt. Widespread in North Africa and southwestern Asia, including the Arabian Peninsula. The subspecies *V. g. griseus* is the lowland form ranging across the Arabian Desert, Iraq, Jordan, Lebanon, and North Africa.

Distributional Pattern of Collected Lizards in Southwest Asia

The genera *Ablepharus* and *Cyrtopodion* have primary diversity in the elevated region stretching from western Turkey to the Himalayas. *Uromastyx*, *Stenodactylus*, *Acanthodactylus* are genera of the low deserts stretching across North Africa, Arabia, and into Pakistan. *Phrynocephalus* is equally central Asian and arid central Iranian Plateau in their distribution and diversity. *Trapelus* and *Ophisops* have their greatest diversity in the southern lowlands of Southwest Asia, yet each has one or more species which are widely distributed through the uplands and even into Central Asia. *Ophisops elegans* and *Varanus griseus* are the most widely naturally distributed lizard in the world, having a range through the entire Palearctic desert region. The following genera are either Holarctic or pan-tropical, some of them discontinuously distributed: *Hemidactylus* and *Trachylepis* (Leviton et al., 1992; Anderson, 1999).

Relationships of the Collected Lizards to Neighboring Areas

Iraq shares the following species with adjacent regions (Fig. 3):

Turkey: *Ablepharus pannonicus*, *Hemidactylus turcicus*, *Trapelus ruderatus*, *Ophisops elegans*, *Trachylepis vittata*, *T. septemtaeniata*, and *Varanus griseus* (Leviton et al., 1992; Anderson, 1999; Rastegar-Pouyani and Fattahi, 2014).

Iran: *Trapelus ruderatus*, *Uromastyx aegyptius*, *Cyrtopodion scabrum*, *Hemidactylus turcicus*, *H. persicus*, *H. flaviviridis*, *Stenodactylus affinis*, *S. doriae*, *Acanthodactylus grandis*, *Ophisops elegans*, *Ablepharus pannonicus*, *Tracylepis vittata*, and *Varanus griseus* (Leviton et al., 1992; Schamnakov et al., 1993; Anderson, 1999; Durmus et al., 2014).

Kuwait and Saudi Arabia: *Trapelus ruderatus*, *Uromastyx aegyptius*, *Cyrtopodion scabrum*, *Hemidactylus turcicus*, *H. persicus*, *H. flaviviridis*, *Stenodactylus doriae*, *Acanthodactylus grandis*, *A. scutellatus*, *A. robustus*, *Ablepharus pannonicus*, *Tracylepis vittata*, *Phrynocephalus maculatus* and *Varanus griseus* (Arnold, 1986; 1987; Al-Sdirawi, 1989; Leviton et al., 1992; Schatti and Gaspertti, 1994; Anderson, 1999).

Jordan: *Trapelus ruderatus ruderatus*, *Uromastyx aegyptius*, *Cyrtopodion scabrum*, *Hemidactylus turcicus*, *Stenodactylus doriae*, *Acanthodactylus grandis*, *A. scutellatus*, *A. robustus*, *A. orientalis*, *Tracylepis vittata*, *Ophisops elegans elegans*, and *Varanus griseus griseus* (Leviton et al., 1992; Al-Quran, 2009; Anderson, 1999; Disi et al., 1999, 2004; Disi, 2011).

Syria: *Trapelus ruderatus ruderatus*, *Uromastyx aegyptius*, *Cyrtopodion scabrum*, *Hemidactylus turcicus*, *Acanthodactylus grandis*, *A. scutellatus hardyi*, *A. robustus*, *A. orientalis*, *Tracylepis vittata*, *Ophisops elegans elegans*, and *Varanus griseus griseus* (Leviton et al., 1992; Disi and Böhme, 1996; Martens, 1997; Anderson, 1999; Amr et al., 2007).

CHECKLIST OF LIZARDS FAUNA IN IRAQ

Boulenger, 1920; Schmidt, 1939; Khalaf, 1959; Reed and Marx, 1959; Nader and Jawdat, 1976; Haas and Werner, 1969; Afrasiab, 1987; Leviton et al., 1992; Afrasiab and Mohammad, 2009; Mohammad et al., 2013; Lahony et al., 2013; Mohammad et al., 2014

Family Gekkonidae
Genus *Hemidactylus* Oken, 1817

H. turcicus (Linnaeus, 1758); Baghdad.
H. persicus Anderson, 1872.
H. flaviviridis Ruppell, 1840; Baghdad, Basra, and Tall Asmar.

Genus *Gymnodactylus* (*Cyrtpodion*) Fitzinger, 1843

Cyrtpodion scabrum (Heyden, 1827); Aqra, Baghdad, Diyala, Amara [= Halfaya], Basra, and An Nasiriya.
C. heterocercus mardinensis (Mertens, 1924), Southern Iraq.
C. kotschyi syriacus (Stepanek, 1937), Northern Iraq.

Genus *Asaccus* (*Phyllodactylus*) Dixon et S. Anderson, 1973

A. elisae (F. Werner, 1895); Eastern Iraq: Baghdad and Mosul.
A. griseonotus Dixon and Anderson, 1973.
A. hasselquistii hasselquistii Donndorff; Haditha.
A. saffinae sp. nov.

Genus *Pristurus* Ruppell, 1835

P. rupestris Blanford, 1874.

Genus *Stenodactylus* Fitzinger, 1826

S. grandiceps Haas, 1952 (*S. sthenodactylus*). Type locality: Addaye, 40 km west of Mosul, Rutba.
S. slevini Haas, 1957; Southern Iraq.
S. doriae Blanford, 1874.
S. affinis (Murray, 1884); southeastern and central Iraq: Kahla, Amara, Ain Tamor.

Genus *Ptyodactylus* Goldfuss, 1820

P. hasselqusti (Donndroff, 1798); Haditha.
P. puiseuxi Boutan, 1893.

Genus *Bunopus* (*Alsophylax*) Blanford, 1874

B. tuberculatus Blanford, 1874 (*sensu lato*).

Genus *Carinatogecko* Golubev and Szczerbak, 1981

C. heteropholis (M. S. Anderson and J. A. Anderson, 1970); northeastern Iraq.

Genus *Eublepharis* Gray, 1827

E. angramainya S. Anderson and Leviton, 1966; Upper Mesopotamian Plain.

Family Agamidae
Genus *Laudakia* (*Agama*) Gray, 1845

L. nupta nupta (*Agama nupta* De Filippi, *A. n. fusca* Blanf.) (De Filippi, 1843); mountains in eastern Iraq.
L. stellio stellio (*A. stellio stellio* Linnaeus); Aqra, Northern Iraq.

Genus *Trapelus* (*Agama*) Cuvier, 1816

A. persica Blanford; Amara and Baghdad.
T. ruderatus ruderatus (Olivier, 1804) (*A. ruderata* Olivier); Balad Sinjar and Tall Afar.
T. pallidus haasi (Y. Werner, 1971) (*A. pallida* Reuss); Baghdad, Euphrates, west bank and Rutba.
A. caucasica (Eichwald); Asshur [= Sharqat] and Diana.

Genus *Phrynocephalus* Kaup, 1825

P. maculates Anderson, 1872.
P. arabicus J. Anderson, 1894; southern Iraq: in the vicinity of Basra.

Genus *Uromastyx* Merrem, 1820

U. aegyptius Forskal, 1775; Baghdad and Rutba.
U. aegyptius microlepis (Blanford, 1874) (*U. microlepis* Blanford); southeastern Iraq: Basra and Fao.
U. loricatus (Blanford, 1874). Apparently confined to the Mesopotamian Plain and Zagros foothills of Iraq; 80 km west of Baghdad.

Family Anguidae
Genus *Ophisaurus* Daudin, 1803

O. apodus (Pallas, 1775); foothills of the Zagros in Iraq.

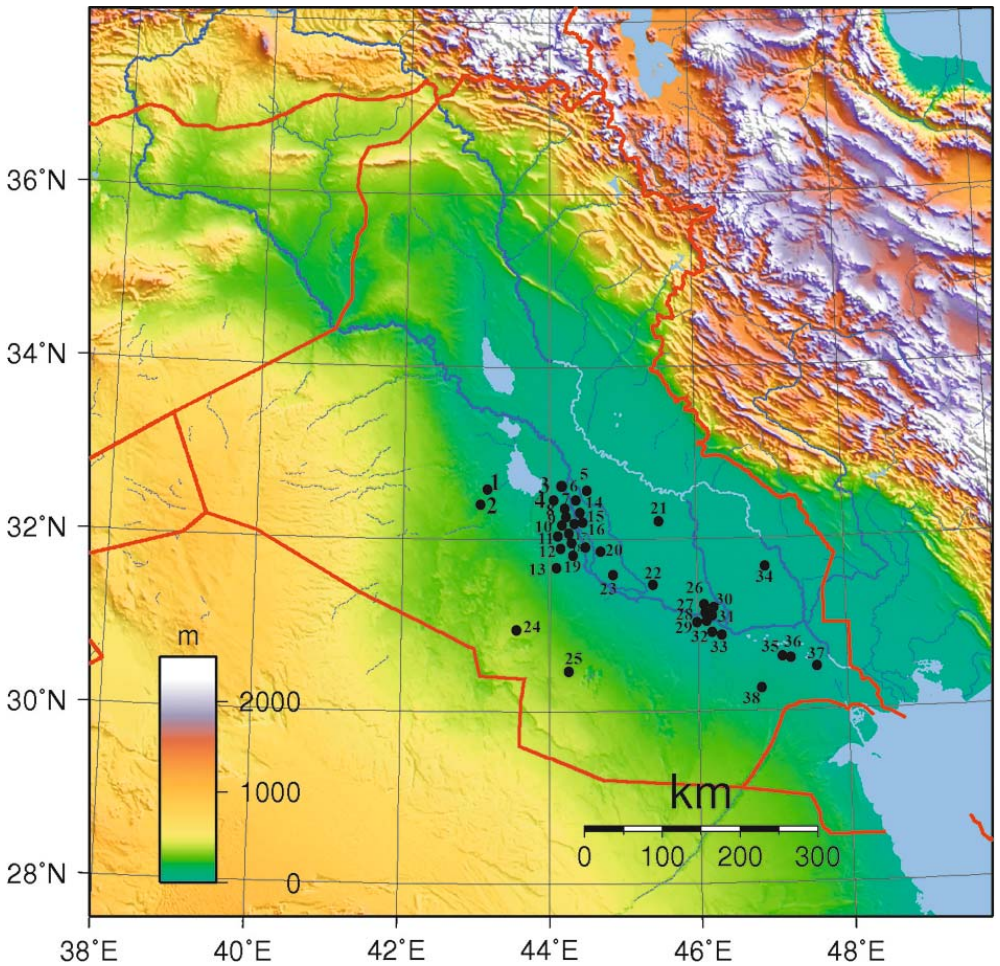

Fig. 3. Map of Iraq showing the localities from which materials were collected or observed. 1, Ain-Tamor District, Holy Karbala'a Province: 32°33′56.52″ N 43°29′25.89″ E; 2, Al-Razzaza lake, Holy Karbala'a Province: 32°41′ N 43°40′ E; 3, Al-Kafeel village, Kerbala District, Holy Karbala'a Province: 32°32′53.6″ N 44°5′39.4″ E; 4, Al-Wadi (Cemetry) in Karbala'a District, Holy Karbala'a Province: 32°33′4.44″ N 44°4′24.12″ E; 5, Al-Ubaid village, Al-Qasim subdistrict, Hashimiya District, Babylon Province: 32°13′43.74″ N 44°33′54.78″ E; 6, Al-Showmali subdistrict, Khagan village, Hashimiya District, Babylon Province: 32°22′00.3″ N 44°46′07.4″ E; 7, Al-Hilla city, Hilla District, Babylon Province: 32°28′43.2″ N 44°24′59.2″ E; 8, Al-Naby Ayub village, Hilla District, Babylon Province: 32°20′46.02″ N 44°23′51.78″ E; 9, Al-Nikhealah village, Hilla District, Babylon Province: 32°25′46.56″ N 44°29′54.06″ E; 10, Abi-Ghraq subdistrict, Hilla District, Babylon Province: 32°32′0.96″ N 44°20′46.92″ E; 11, Ibraheem Al-Khaleel village Hilla District, Babylon Province: 32°23′37.44″ N 44°20′47.58″ E; 12, Bahr Al-Najaf, Najaf district, Holy Al-Najaf Province: 31°52′30.5″ N 44°15′47.2″ E; 13, Madhlum village, Bahr Al-Najaf, Al-Najaf District, Holy Al-Najaf Province: 31°53′37.6″ N 44°16′25.4″ E; 14, Al-Jayir village, Al-Mushkhab District, Holy Al-Najaf Province: 31°50′28.4″ N 44°30′13.7″ E; 15, Al-Kufa District, Holy Al-Najaf Province: 32°8′05.7″ N, 44°22′17.3″ E; 16, Al-Abbasiya county, Al-Kufa District, Holy Al-Najaf Province: 32°4′50″ N 44°26′46.3″ E; 17, Al-Qizwiniya, Al-Abbasiya county, Al-Kufa District, Holy Al-Najaf Province: 32°4°50.0″ N 44°26′46.3″ E; 18, Um Groon called area Al-Najaf District, Holy Al-Najaf Province: 3°46′17.3″ N 44°13′37.8″ E; 19, Diwaniya District, Al-Qadisiya Province: 31°56′28.8″ N 44°54′12.6″ E; 20, Al-Shabaka, Al-Najaf District, Holy Al-Najaf Province: 30°48′19.36″ N 43°40′5.87″ E; 21, Hamza District, Al-Qadisiya Province: 3°43′42.1″ N 44°57′35.6″ E; 22, Al-Shamiya District, Qadisiya Province: 31°58′17.1"N, 44°36′36.4″ E; 23, Al-Rumaitha, Al-Muthanna Province: 31°30′56.1″ N 45°12′17.6″ E; 25, Al-Salman District, Al-Muthanna Province: 30°33′8.96″ N 44°33′50.65″ E; 26, Al-Bdoor, Fahad Bridge-Al-Samawa District, Al-Muthanna Province: 31°8′50.8″ N 45°59′09.8″ E; 27, Al-Sabaa field-Suq Al-Shoyokh, Dhi Qar Province: 30°37′56.5″ N 46°41′16.1″ E; 28, Albu-Jumaa village, Said Dakheel subdistrict, Dhi-Qar Province: 3°10′52.4″ N 46°19′44.9″ E; 24, Um Enage, Al-Chibayish, Dhi-Qar Province: 30°37′56.5″ N 46°41′16.1″ E; 29, Albu-Yosif village, Said Dakheel Subdistrict, Nassriya, Dhi Qar Province: 31°9′29.3″ N 46°17′23.5″ E; 30, Albuhbail village, Said Dakheel Subdistrict, Nassriya District, Dhi Qar Province: 31°10′40.1″ N 46°19′39.2″ E; 31, Albedhan villages, Said dakheel county, Dhi-Qar Province: 3°9′54.3″ N 46°20′13.8″ E; 32, Al-Mutanazh/ Nassriya District, Dhi Qar Province: 31°2′52″ N 46°14′01.4″ E; 33, Al-Dalmaj, Wasit Province: 32°7′55.3″ N 45°37′38″ E; 34, Al-Kahla subdistrict, Amara District, Maysan Province: 31°35′17.59″ N 47°25′7.24″ E; 35, Al-Muftia, Al-Basrah, Al-Basra Province: 30°32′35″ N 47°49′26.6″ E; 36, Al-Jubaila, Al-Basrah, Al-Basra Province: 30°32′27.7″ N 47°48′56.5″ E; 37, Al-Salhiya, Kut-elguwam-Shatt Al-Arab, Al-Basra Province: 30°30′33.6″ N 47°53′12″ E; 38, Khor-Al-Zubair, Al-Zubair District, Basra Province: 30°18′51.4″ N 47°44′50.4″ E.

Family Varanidae
Genus *Varanus* Merrem, 1820

V. griseus griseus (Daudin, 1803); Baiji, Nssariyeh, and Mesopotamia.

V. griseus caspius (Eichwald, 1831); Hawraman Lowest one, Kurdistan Province North East of Iraq.

Family Lacertidae
Genus *Acanthodactylus* Fitzinger, 1834

A. boskianus (Daudin, 1802) (*A. b. asper* Audouin); Basra, Euphrates, Ramadieh, Haditha, and Rutba.

A. t. euphraticus Boulenger; Tall Afar.

A. grandis Boulenger, 1909 (*A. fraseri* Boulenger).

A. orientalis Angel, 1936 (*A. t. orientalis*) [*A. tristrami* (Gunther) (*A. t. iracensis* Schmidt)]; western and central Iraq, Papworths Area: south of Rutba, Haditha.

A. scutellatus hardyi Haas, 1957; southern Iraq: Basra.

A. robustus F. Werner, 1929; southwestern Iraq: Jebel Enaze.

A. opheodurus Arnold, 1980.

A. schmidti Haas, 1957; southern and western Iraq.

Genus *Eremias* Fitzinger, 1834

E. persica Blanford, 1875 (*E. velox persica*); doubtfully occurs in Iraq.

Genus *Ophisops* Menetries, 1832

O. elegans elegans Menetries, 1832; Amara, Basra, Baghdad, Balad Sinjar, Diana, Sulaimaniya, and Tall Afar.

O. elegans ehrenbergii Werner, 1938; Ramadieh and Euphrates.

O. blanfordi Schmidt, 1939; type from Halfaya, 32 km east of Amara.

Genus *Apathya*

A. cappodocica urmiana Lantz and Suchow, Aqra.

Genus *Timon* Tschudi, 1836

Timon kurdistanicus (Suchow, 1936).

Genus *Mesalina* Gray, 1838

M. brevirostris Blanford, 1874; Papworths Area and Rutba, Ramadieh.

M. guttulata guttulata (Lichtenstein, 1823); Haditha.

Family Scincidae
Genus *Trachylepis* (*Mabuya* Fitzinger, 1826)

M. vittata Olivier, 1804; Amara and Mesopotamia.

M. aurata aurata Linnaeus, 1758; Tall Afar.

M. aurata septemtaeniata Reuss, 1834; Amara, Basra, Ramadieh, Euphrates, Baghdad, Diyala, and Halfaya.

Genus *Ablepharus* Fitzinger, 1823

A. kitaibellii (Bibron and Bory, 1833); Iraq.

A. pannonicus Fitzinger, 1823 (*A. brandtii festae* Peracca); southeastern Iraq: Baghdad, Suk-esh-Shuyek, Euphrates, Amara, Basra.

Genus *Eumeces* Wiegmann, 1834

E. schneiderii princeps (Eichwald, 1839); Mesopotamia: Balad Sinjar, Rutba and Tall Afar.

Genus *Scincus* Laurenti, 1768

S. scincus conirostris Blanford, 1881; Baghdad.

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