

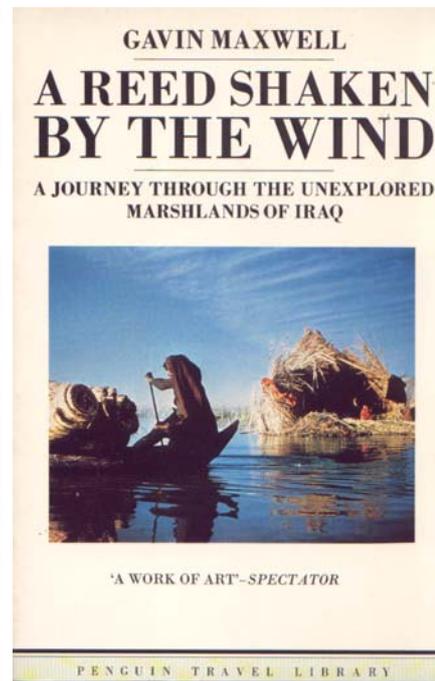
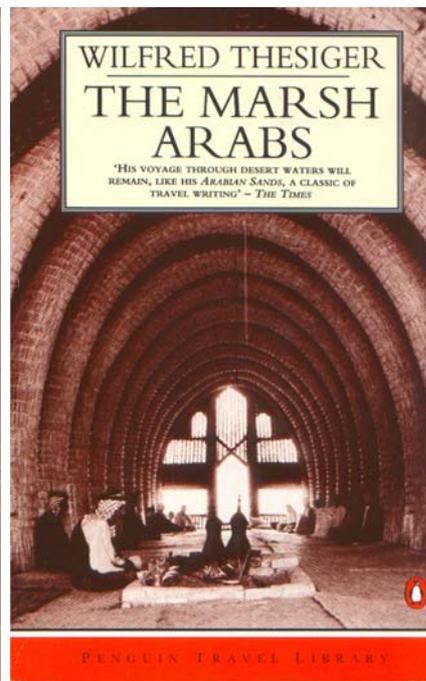
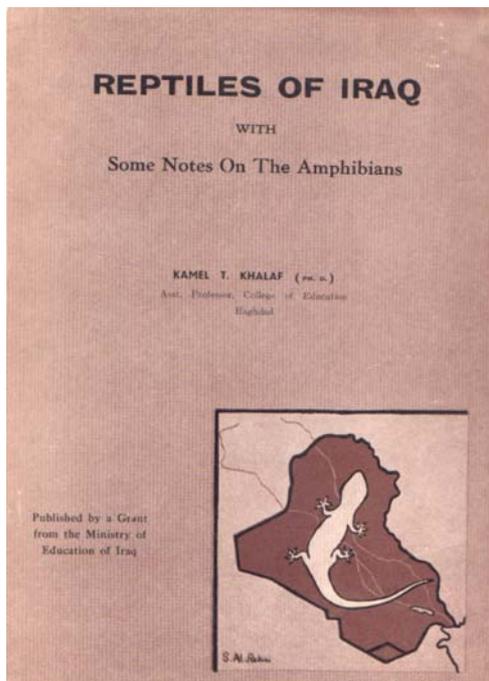
Iraqi herpetology: an introductory checklist

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PROLOGUE

If we believe the current president of the United States, George W. Bush, the Second Gulf War is officially ended. Iraq might now become the next once relatively closed country in the Middle East after Afghanistan (IN DEN BOSCH, 2001a) to attract herpetologically interested Western visitors. So the time has arrived to read up on the amphibians and reptiles of this region.

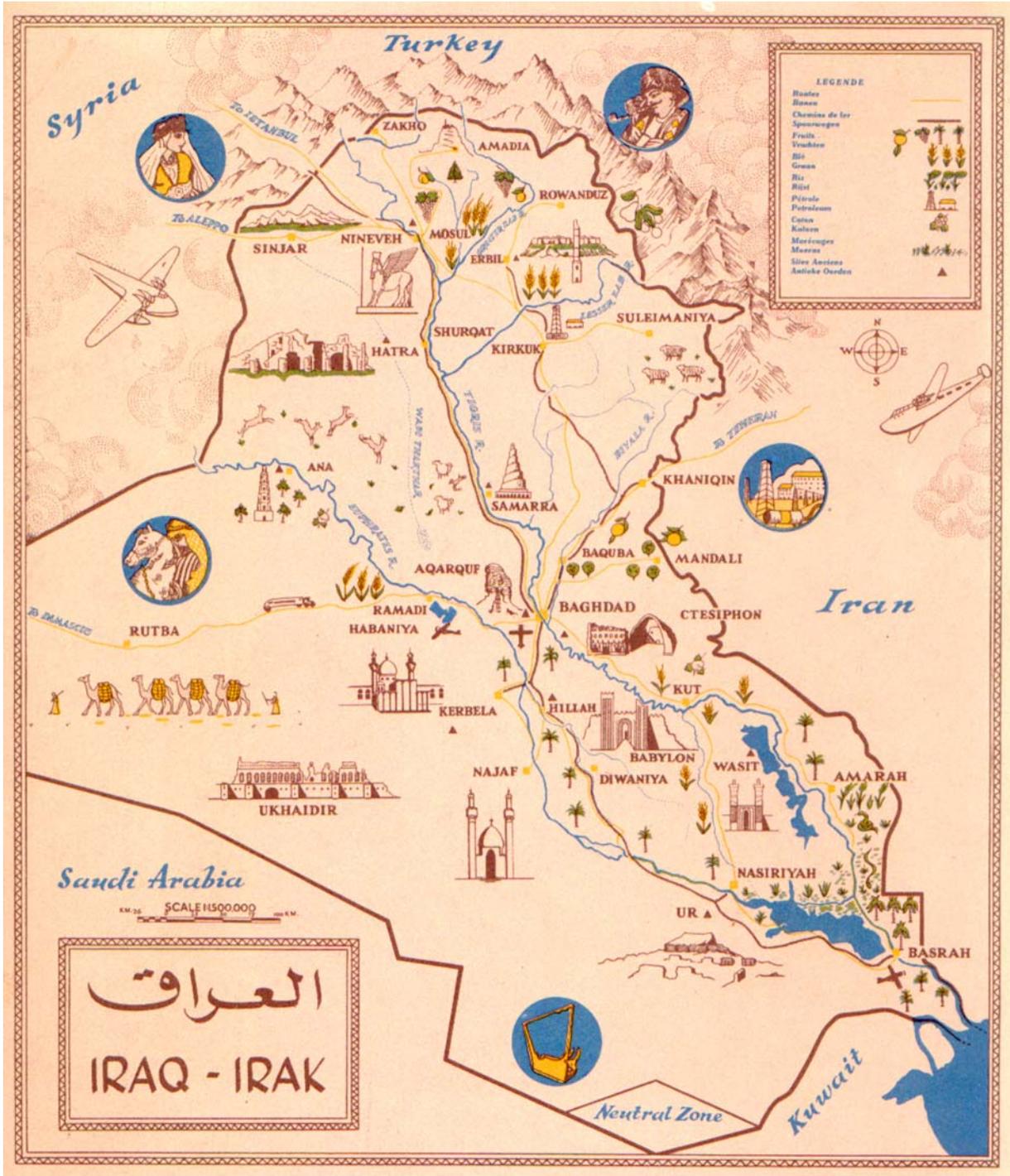
What immediately becomes clear is that Iraq has been neglected herpetologically for a long time. Of course The Handbook to Middle East Amphibians and Reptiles (LEVITON et al., 1992) is relevant once again, written as it was for the First Gulf War ten years ago. This work should be consulted for more recent herpetological taxonomy, but in an historical context it will be informative to reproduce here the lists from KHALAF (1959) – with species names in their original spelling – as this work is frequently referenced but can be difficult to locate.



This paper is being presented as an overview of what has so far been published on the herps of Iraq and is based primarily on the literature available to me. I have also included some information currently available on the Internet. I am not trying to present an up-to-date annotated checklist but rather to create a steppingstone for people interested in the herpetology of the region.

COUNTRY

In contrast to what the warmongers of our present day suggest, Iraq is not just a sandbox where a blind horse couldn't do any damage; implicitly suggesting an all-out technological war will not hurt the environment in any way. A large part of the country consists of a flat, brown, dusty desert, but in the north we find the southern foothills of the Zagros Mountains and in the south until recently there were extensive marshes, inhabited for at least five millenniums and immortalised in Wilfred THESIGER's (1964) 'Marsh Arabs' and earlier paper (THESIGER, 1954). In this wide variety of landscapes a just as varied assortment of amphibians and reptiles can be found.

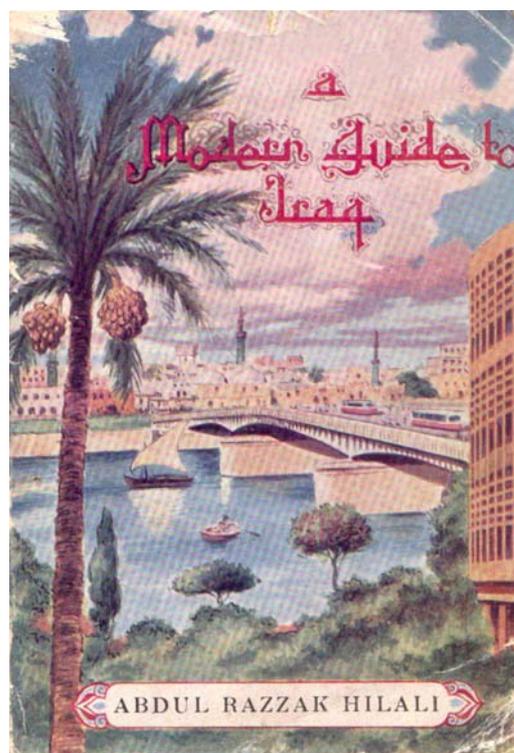


Map from: Irak in beeld / L'Iraq en images, published on the occasion of the World Fair in Brussels (Al-Hilali, H. & H. Alkhayat (eds.), 1958. Orient-Mercur, Cologne-Deutz).

The short sketch below is meant as an introduction to the physical geography of Iraq (in part from the *ENCYCLOPAEDIA BRITANNICA* (2000)) and should give the reader some idea of the possible habitats of the local herpetofauna.

Iraq's total area is 435,052 square kilometres with 19 kilometres of coastline along the northern end of the Persian Gulf. In classical times this region was called Mesopotamia – Land between the rivers – and gave rise to the world's earliest civilisations. It became known as Iraq in the 7th century but did not show the same boundaries. Modern Iraq was created in the aftermath of World War I mainly on instigation of the British and gained independence in 1932. Gertrude Bell comes to mind, who was influential in this, known best for her book 'The Desert and the Sown' (1907) but she also published 'The Arabs of Mesopotamia' in 1917 and 'Review of the civil administration in Mesopotamia' in 1921. Even then Iraq did not form the unity it was supposed to be. The present re-appearing "heirs to the throne" are not a very ancient royalty, but rather descendants of a neo-colonial puppet regime.

Difficult to imagine, but in 1957 travel guides on Iraq were available. (Hilali, A.R., 1957. *A modern guide to Iraq*. Al Kashaf Press, Beirut.)



The country has one of the world's largest known oil reserves and was the world's second largest oil exporter in 1980, before the war with Iran. Cynics could be led to think that this resource is a more compelling reason for the USA to wage war with Saddam Hussein than his poor track record in human rights and his assumed possession of ABC weapons being a danger to the world.

THE LAND

Iraq's relief can be divided into four physiographic regions: the alluvial plains of the central and southeastern parts of the country; Al-Jazirah, an upland region in the north between the Tigris and Euphrates rivers; deserts in the west and south; and the highlands in the northeast.

The alluvial plains of lower Mesopotamia extend southward some 600 km from Balad on the Tigris and Ar-Ramadi on the Euphrates to the Persian Gulf. They cover almost a third of the country, and are characterised by low elevation, below 100 metres, and poor natural drainage. Large areas are subject to widespread seasonal flooding, and there are extensive marshlands, some of which dry up in the summer to become salty wastelands.

Near Al-Qurnah, where the Tigris and Euphrates converge to form the Shatt al-'Arab, there are by humans inhabited marshes. The alluvial plains contain extensive lakes.



The north and northeast of Iraq is mountainous.

The northeast

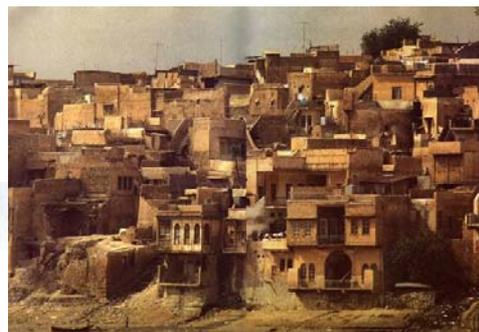
The mountains, hills, and plains of northeastern Iraq occupy about a fifth of the country. Of this area only about a fourth is mountainous; the remainder is a complex transition zone between mountain and lowland. North and northeast of the Assyrian plains and foothills is Kurdistan, a mountainous region that extends into Turkey and Iran. The relief of northeastern Iraq rises from the Tigris toward the Turkish and Iranian borders in a series of rolling plateaux, river basins, and hills until the high mountain ridges of Iraqi Kurdistan, associated with the Taurus and Zagros mountains, are reached. These

mountains are aligned northwest to southeast and are separated by river basins where human settlement is possible. The mountain summits have an average height of about 2400 m, rising from as high as 3000 to 3300 m in places. The highest mountain ridges contain the only forests in the country.

A transitional submontane steppic belt is found between the foothills region and the upper plains.

Al-Jazirah

North of the alluvial plains, between the Tigris and the Euphrates rivers, is an arid plateau known as Al-Jazirah ("The Island"). The most prominent hill range is the Sinjar Mountains (Jabal Sinjar), whose highest peak reaches 1500 m. The main watercourse is the Wadi Ath-Tharthar, which runs southward for 200 km from the Sinjar Mountains to the Umm Rahal salt depression. Milhat Ashqar is the largest of several salt flats (or sabkhas) in the region.



Old Mosul.



Nineveh.

Deserts

Western and southern Iraq is a vast desert region covering almost 40 percent of the country. The western desert, called Wadiyah, rises to almost 500 m. The southern desert is known as Al-Hijarah in the western part and as Ad-Dibdibah in the east. Al-Hijarah has a complex topography of rocky desert, wadis, ridges, and depressions. Ad-Dibdibah is a sandier region with a covering of scrub vegetation. Elevation in the southern desert averages between 100-350 m. A height of 940 m is reached at 'Unayzah Mountain (Jabal 'Unayzah) at the intersection of the borders of Jordan, Iraq, and Saudi Arabia. The deep Wadi Al-Batin runs 70 km in a northeast-to-southwest direction through Ad-Dibdibah. It has been recognised since 1913 as the boundary between western Kuwait and Iraq. The extreme south is a region of extensive marshes and reed swamps, locally known as hawrs.

Settlement patterns

Iraq has approximately 23 million inhabitants. Migration to the fertile lowlands and to the cities increased densities in these regions to exceed 200 persons per square kilometre. Almost a third of the population lives within 150 km of Baghdad. There is also an axis of dense population between Baghdad and Basra, the second largest city. Today there are several thousand villages and hamlets scattered unevenly throughout the 60 percent of Iraq that is permanently settled. The greatest concentration of villages is in the valleys and lowlands of the Tigris and Euphrates. Their populations – less than one-third of the total population – are almost exclusively engaged in agriculture.



Approximately one third of the Iraqi population lives in villages.

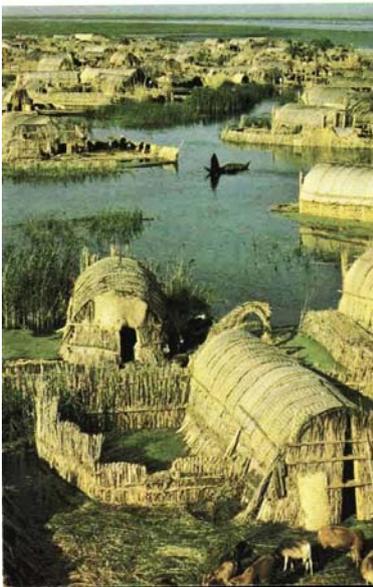
Less than 15 percent of Iraq's total area is considered to be arable. A large proportion of this arable land is in the north and northeast, where rainfall is sufficient for the cultivation of winter crops, mainly wheat and barley. The remainder is in the valleys of the Tigris and Euphrates rivers, where irrigation is necessary throughout the year. The chief crops are barley, wheat, rice, vegetables, maize, millet, sugarcane, sugar beets, oil seeds, fruit, fodder, tobacco, and cotton. Yields vary considerably from year to year, particularly in areas of rain-fed agriculture. Livestock products, notably milk, meat, hides, and wool, are also important.

The arid and semiarid areas in the west and south have very sparse populations. Nomadic Bedouin tribes were once important in these areas. In the mid-19th century they made up more than one-third of the population. Today there are few nomadic Bedouin in Iraq. Another life-style under threat is that of the marsh dwellers (Madan) of southern Iraq. They live, or rather lived, in reed dwellings built on brushwood foundations or sandspits. These traditional reed houses of the marsh dwellers of the Al-'Amarah area, with their remarkable barrel-vaulted roofs, are unique to Iraq. These marshes have diminished greatly in size through water regulation by dams upstream, not only by Iraq but also on the Euphrates in

Turkey and Syria. This has much restricted seasonal flooding. Moreover, the Saddam regime deliberately intended to deprive the mainly Shi'a moslems in the south of their livelihood, though the official motivation of the scheme was to decrease salinization problems, reclaim land for food production and to increase the amount of water for irrigation purposes. Other drainage works were done to facilitate the exploitation of oil resources. The results amount to ecological catastrophe.

Levels of pollution in the marshes have increased substantially in recent years. Many reports indicate that the persistent insecticide Chloridrin is or was being obtained in Iran and sold to local residents as a quick method of poisoning and catching large quantities of fish for selling. The introduction of motorboats to the deeper areas of the marshes has led to noticeable and frequent oil pollution along the heavily used waterways between the main villages.

The air quality in many of the larger and smaller cities suffers from car exhausts.



The southern marshes in better days.

Photo: <http://alamood.dk/iraq/>



What remains after the marshes were drained.

Photo: Pictures of southern Iraq (May 2001),
<http://turing.wins.uva.nl/~grunberg/>

Drainage

Iraq is drained by the Tigris-Euphrates river system, although less than half of the Tigris-Euphrates basin lies in Iraq. Both rivers rise in the Armenian highlands of Turkey, where they are fed by melting winter snow. The Tigris flows for 1400 km and the Euphrates for 1200 km through Iraq before they join at Qarmat 'Ali just north of Basra to form the Shatt al-'Arab, which flows for 110 km to enter the Persian Gulf.

The Euphrates does not receive any tributaries within Iraq. The Tigris runs close to the high Zagros Mountains from which it receives a number of important tributaries, notably the Great Zab (150 km), the Little Zab (250 km), and the Diyala (300 km), which rise in the mountains of eastern Turkey and northwestern Iran. As a result, the Tigris can be subject to devastating floods, as evidenced by the many old channels left when the river carved out a new course. The period of maximum flow of the Tigris is from March to May when more than two-fifths of the annual total discharge may be received. Many dams are needed on the rivers and their tributaries to control flooding and permit irrigation. Iraq has giant irrigation projects at Bekme, Badush, and Fathah. Turkey and Syria are also increasing their use of Tigris-Euphrates waters, and no proper agreement on allocation has been reached.

The greatly reduced Tigris and Euphrates contribute only a small portion of al-'Arab's waters, the great bulk deriving from Iran's longest river, the Karun, which enters at Khorramshahr. The Karkheh is a minor left-bank tributary from Iran. The agricultural belt along the Shatt al-'Arab, no more than five km wide on either side, is the richest area of date palm cultivation in the world. Irrigation occurs as high tide in the Persian Gulf forces the fresh water of the river to back up and overflow into creek beds. Because the lower Shatt al-'Arab forms a portion of the Iraqi-Iranian border, Iraq's dependence on the river as its only access to the sea has been an issue of strategic importance to both countries. The vulnerability of the minor Iraqi river port at Al-Faw was made clear by Iran's capture of the city during the Iran-Iraq War. After that war, Iraq began cutting a channel to the gulf from Az-Zubayr, west of the main port of Basra. It has been argued that the Persian Gulf war of 1990-91 was brought on in part by Iraq's desire to use the Kuwaiti islands of Bubiyan and Al-Warbah in the gulf as the off-loading points for this new channel.



Satellite picture (UoSAT-12) of Baghdad.

Photo: Surrey Space Centre

Climate

Iraq has two climatic provinces: the hot, arid lowlands, including the alluvial plains and the deserts and the damper northeast, where the higher altitude produces cooler temperatures. In the northeast rain-fed cultivation is possible, but elsewhere irrigation is essential. In the lowlands there are two seasons, summer and winter, with short transitional periods between them.

In summer, which lasts from May to October, there are clear skies, extremely high temperatures, and low relative humidity; no rain falls from June through September. In Baghdad, July and August mean daily temperatures are about 35°C, and summer temperatures of 51°C have been recorded. Summer temperatures range considerably between day and night. In winter the paths of westerly depressions crossing the Middle East shift southward, and bring rain to southern Iraq. From year to year totals vary considerably, but mean annual rainfall in the lowlands ranges from about 100 to 180 millimetres; about 90 percent of this rainfall occurs between November and April.

Winter in the lowlands lasts from December to February. Temperatures are generally mild, although extremes of hot and cold, including frosts, can occur. Winter temperatures in Baghdad range from about 2 to 15°C.

In the northeast the summer is shorter than in the lowlands, lasting from June to September, and the winter considerably longer. The summer is generally dry and hot, but average temperatures are somewhat cooler than those in lowland Iraq are. Winters can be

very cold as a result of high relief and the influence of northeasterly winds that bring continental air from Central Asia. January temperatures in Mosul range between -4 and 17°C, and temperatures as low as -11°C have been recorded. In the foothills of the northeast, annual rainfall of 300-550 mm, enough to sustain good seasonal pasture, is typical. Precipitation may exceed 1000 mm in the mountains, much of it falling as snow. As in the lowlands, very little rain falls during the summer.

During summer a steady northerly and northwesterly wind, the shamal, affects all of Iraq. It brings very dry air so that hardly any clouds form, permitting intensive heating of the land surface by the sun. Another wind, the sharki, blows from the south and southeast during early summer and early winter; it is often accompanied by dust storms. Dust storms occur throughout Iraq during most of the year and may rise to several thousand meters in height. They are particularly frequent in summer, with five or six striking central Iraq in July, the worst month.

Soils

The desert regions have poorly developed soils of coarse texture with many stones and unweathered rock fragments. Plant growth is limited because of aridity, and the humus content is low. In northwestern Iraq, soils vary considerably: some regions with steep slopes are badly eroded, while the river valleys and basins contain some light fertile soils. In northwest Al-Jazirah, there is an area of potentially fertile soils similar to those found in much of the Fertile Crescent. Lowland Iraq is covered by heavy alluvial soils, with some organic content and a high proportion of clays, suitable for cultivation and for use as a building material. Salinity is a serious problem that affects about two-thirds of the land and has resulted in the abandonment of large areas of agricultural land. A high water table and poor drainage, coupled with high rates of evaporation, cause alkaline salts to accumulate at or near the surface in sufficient quantities to limit agricultural productivity. Heavy soil erosion in parts of Iraq, some of it induced by overgrazing and deforestation, leaves soils exposed to markedly seasonal rainfall. The Tigris-Euphrates river system has as a result created a large alluvial deposit at its mouth, so that the Persian Gulf coast has apparently shifted many kilometres since Babylonian times.

Plant and animal life

Vegetation in Iraq reflects the dominant influence of drought. Some Mediterranean and alpine plant species thrive in the mountains of Kurdistan, but the open oak forests that were once found there have largely disappeared. Hawthorns, junipers, terebinths, and wild pears grow on the lower mountain slopes. A steppe region of open, treeless vegetation is located in the area extending north and northeast from the Hamrin Mountains up to the foothills and lower slopes of the mountains of Iraqi Kurdistan.

Willows, tamarisks, poplars, licorice plants, and bulrushes grow along the banks of the lower Tigris and Euphrates rivers. Dozens of varieties of date palm flourish throughout southern Iraq, where the date palm dominates the landscape. Dates are the most important export after oil. In general afforestation projects have met with limited success. The Flora of Iraq, vol. 1, Introduction (ed. by Evan Guest, 1966), provides information not only on vegetation but also on the topography, geology, soils, and climate of the country.

Birds are easily the most conspicuous forms of wildlife, just as in neighbouring Syria, Jordan and Iran. The lion and oryx have become extinct in Iraq, and the ostrich and wild ass are nearly extinct. Wolves, foxes, jackals, hyenas, wild pigs, and wildcats are found, as are many small animals such as martens, badgers, otters, porcupines, and muskrats. Marcia's gazelle survives in certain remote desert locations. Rivers, streams, and lakes are well stocked with a variety of fish, notably carp, barbus, catfish, and loach. Like other regions of the Middle East, Iraq is a breeding ground for the desert locust.



Traditional reed house of the marsh dwellers: mudhif.

WAR DAMAGE

Much of the fighting during the prolonged Iran-Iraq War (1980-88) took place in and around the wetlands, and caused considerable damage to the marsh ecosystems. Extensive burning, heavy bombing and shelling and widespread use of chemical weapons were involved. Large areas of reed-beds were deliberately destroyed by Iraqi troops in Hawr Al-Hawizeh and the Central Marshes during searches for deserters; heavily armoured boats were used to crash through reed-beds, special reed-cutting machines were used, and large areas were simply set on fire. Similar

methods were used after the 1991 Gulf War to search for anti-government rebels. In other respects the Gulf War seems to have had relatively little direct impact on the Mesopotamian marshes. Wetland vegetation in the Khuzestan lowlands of neighbouring southwestern Iran was damaged by acidic "black rain" from the burning oil well-fields in Kuwait, and it seems likely that similar damage occurred in the wetlands around Basra, only a short distance to the west. The type and magnitude of the damage is not known, but is likely to have been temporary and reversible. The impact of the 2nd Gulf War has not yet been determined, but is presumably much less, because of the quick advance of the coalition troops who met with little resistance.



Baghdad.

HERPETOFAUNA

The Iraqi Biological Research Centre has collected and studied reptiles, and published a monograph on the geckoes of Iraq (NADER & JAWDAT, 1976). NIAZI (1976) presented a longer lacertid paper, but few other studies have been undertaken, and the status, distribution and habits of most species are poorly known. The situation for native fish is similar. In contrast, the mammals and birds have received much more attention. Therefore no doubt KHALAF's (1959) lists are in need of an update, but only a very limited amount of new data is available. Below is what I found scanning library records and the Web.

Amphibians in Iraq (KHALAF, 1959)

Caudata
Salamandridae
Neurergus crocatus crocatus Cope
Salamandra salamandra (Laur.)
 Salienta
Bufonidae
Bufo viridis viridis Laurenti
Hylidae
Hyla arborea savignyi Audouin
Ranidae
Rana ridibunda ridibunda
Rana camerani

Turtles in Iraq (KHALAF, 1959)

Testudinata
Emydidae
Clemmys caspica caspica (Gmelin)
Cheloniidae
Eretmochelys imbricata bisca (Ruppell)
Dermochelyidae
Dermochelys coriacea schlegelii (Garman)
Trionychidae
Trionyx euphraticus (Daudin)
Testudinidae
Testudo graeca ibera Pallas

Lizards in Iraq (KHALAF, 1959)

Gekkonidae
Hemidactylus turcicus (Linnaeus)
Hemidactylus persicus Anderson
Hemidactylus flaviviridis Ruppel
Gymnodactylus scaber (Heyden)
Phyllodactylus elisae Werner
Pristurus rupestris Blanford
Stenodactylus sthenodactylus (Lichtenstein)
Stenodactylus grandiceps Haas
Stenodactylus doriae (Blanford)
Ptyodactylus hasselquisti (Donndorff)
Alsophylax tuberculatus (Blanford)
Eublepharis macularius (Blyth.)
Agamidae
Agama stellio stellio (Linnaeus)
Agama persica Blanford
Agama agilis Olivier
Agama rudrata Olivier
Agama pallida Reuss
Agama caucasica (Eichwald)
Agama nupta De Filippi
Phrynocephalus maculatus Anderson
Uromastix aegyptius Linne
Uromastix microlepis Blanford
Uromastix loricatus (Blanford)
Varanidae
Varanus griseus (Daudin)
Amphisbaenidae
Diplometopon zarudnyi Nikolsky
Lacertidae
Acanthodactylus boskianus (Daudin) *A. b. asper*
 (Audouin) and *A. b. euphraticus* Boulenger
Acanthodactylus grandis Boulenger

Acanthodactylus tristrami (Gunther) *A. t. iracensis*
 Schmidt and *A. t. orientalis* Angel
Acanthodactylus fraseri Boulenger
Acanthodactylus scutellatus (Audouin)
Acanthodactylus robustus Werner
Eremias guttulata guttulata (Lichtenstein)
Eremias brevirostris (Blanford)
Eremias velox persica Blanford
Ophisops elegans elegans Menetries
Ophisops elegans ehrenbergii (Wiegmann)
Ophisops blanfordi Schmidt
Apathya cappadocica urmiana Lantz and Suchow
Scincidae
Mabuya vittata (Olivier)
Mabuya aurata aurata (Linnaeus)
Mabuya aurata septemtaeniata (Reuss)
Ablepharus kitaibellii (Bibron and Bory)
Eumeces schneiderii (Daudin) *E. s. princeps*
 (Eichwald)
Scincus scincus conirostris Blanford

Snakes in Iraq (KHALAF, 1959)

Typhlopidae
Typhlops braminus (Daudin)
Typhlops vermicularis Merrem
Leptotyphlopidae
Leptotyphlops macrorhynchus (Jan)
Boidae
Eryx jaculus familiaris Eichwald
Viperidae
Vipera lebetina euphratica Martin
Aspis cerastes (Linn.)
Echis carinatus (Schneider)
Pseudocerastes fieldi Schmidt
Hydrophiidae
Enhydrina schistosa (Daudin)
Microcephalophis gracilis (Shaw)
Elapidae
Walterinnesia aegyptia Lataste
Colubridae
Telescopus fallax iberus (Eichwald)
Telescopus martini Schmidt
Telescopus nigriceps (Ahl)
Malpolon monspessulana insignitus (Geoffroy)
Malpolon moilensis (Reuss)
Psammophis schokari (Forsk.)
Natrix tessellata tessellata (Laurenti)
Coluber najadum (Eichwald)
Coluber jugularis asianus (Boettger)
Coluber ventromaculatus Gray
Coluber rhodorhachis rhodorhachis (Jan)
Coluber rogersi (Anderson)
Coluber ravergieri Menetries
Spalerosophis cliffordi (Schlegel)
Lytrochilus diadema (Dumeril and Bibron) *L. d.*
mesopotamicus Haas
Eirenis persica (Anders.)
Eirenis collaris (Menetries)
Eirenis coronella coronella (Schlegel)
Eirenis coronella fraseri Schmidt
Eirenis decemlineata (Dumeril and Bibron)



Pelobates syriacus.

Photo: H.A.J. in den Bosch

The Amphibian Species of the World V2.21 database (FROST, 2002) of the American Museum of Natural History Herpetology Department lists ten amphibian species for Iraq: Bufonidae – *Bufo surdus* and *Bufo viridis*; Hylidae – *Hyla savignyi*; Pelobatidae – *Pelobates syriacus*; Ranidae – *Rana cerigensis* (wrongly, it turns out: pers. com. P. Beerli), *Rana macrocnemis*, and *Rana ridibunda*; Salamandridae – *Neurergus microspilotus*, *Salamandra salamandra*, and *Triturus vittatus*. This list includes more animals, and is somewhat different from KHALAF's (1959) records (see tables), partly as a result of new insights into the evolutionary complexity of the genera involved (e.g. *Rana!*), and some

additional observations. But this American listing is certainly not definitive either.

SCOTT (1995) deals mainly with birds and more specifically waterfowl, but in passing mentions several amphibian and reptile records, which are reproduced here verbatim.

Tharthar Lake (33°40'-34°30'N, 43°00'-43°40'E; on the plains between the Tigris and Euphrates Rivers, about 100 km northwest of Baghdad, Salah Al Din Governorate): common reptiles include the agamids *Agama agilis* and *A. ruderata*, the lacertids *Acanthodactylus boskianus* and *A. grandis*, and several snakes of the genus *Coluber*. The globally threatened Desert Monitor *Varanus griseus* is present in fairly good numbers in the semi-desert to the east of the lake, and the rare viper *Pseudocerastes fieldii* has been collected on the shore of the lake (K.Y. Al-Dabbagh, in litt.).

Shari Lake (34°22'N, 44°08'E; on the plains to the east of the Tigris River, 30 km northeast of Samarra, Salah Al Din Governorate): common reptiles include the agamids *Agama agilis* and *A. ruderata*, the lacertids *Acanthodactylus boskianus* and *A. grandis*, and several snakes of the genus *Coluber*. The globally threatened Desert Monitor *Varanus griseus* occurs in the surrounding desert.



Acanthodactylus grandis.

Photo:

H.A.J. in den Bosch

Lake Razazah (Bahr Al Milh) (32°31'-33°02'N, 43°26'-43°55'E; on the plains to the west of the Euphrates River, about 10 km west of Karbala and 80 km southwest of Baghdad, Karbala Governorate). The spiny-tailed lizard *Uromastix* sp. is said to be abundant around the lakeshore.

SCOTT (1995) goes on: little information is available on the amphibians and reptiles of the Mesopotamian marshes. MAXWELL (1957) commented on the extreme abundance of frogs, and concluded that there were several species in the marshes. MAHDI & GEORGE (1969) list a toad (*Bufo viridis*), a tree frog (*Hyla arborea*) and two frogs (*Rana ridibunda* and *R. esculenta*) for Iraq. Common reptiles in the marshes included the Caspian Terrapin (*Clemmys caspia*), a soft-shell turtle (*Trionyx euphraticus*), geckos of the genus *Hemidactylus*, two species of skinks (*Mabuya aurata* and *M. vittata*), and a variety of snakes including the Spotted Sand Boa (*Eryx jaculus*), Tessellated Water Snake (*Natrix tessellata*), and Gray's Desert Racer (*Coluber ventromaculatus*). The Desert Monitor (*Varanus griseus*) was formerly common in desert areas adjacent to the marshes, but this species has been heavily persecuted and is now rare.



Natrix tessellata.

Photo: H.A.J. in den Bosch

At <http://www.xmission.com/~gastown/herpmed/iraq.htm> a list of venomous snakes of Iraq can be found. Its emphasis is on the effects of envenomation and treatment of the victims with antivenoms, but an indication of the geographic range within Iraq is also given. Again I present the names literally and refer to my provisional checklist for current taxonomy.

Vipera lebetina: along Tigris-Euphrates drainage in northern Iraq.

Vipera lebetina obtusa: Iraq.

Vipera raddei kurdistanica: extreme northern Iraq.

Cerastes cerastes gasperettii: southwestern Iraq, widespread in Iraq east of the Euphrates.

Echis carinatus sochureki: southern Iraq and elsewhere on the Arabian Peninsula.

Pseudocerastes persicus persicus: northern Iraq.

Pseudocerastes persicus fieldi: southwestern Iraq.

Walterinnesia aegyptica: widespread including outside of desert habitats such as the Mosul Region which is steppe-grassland. It has been discovered in Jarmos into the foothills of the Zagros Mountains. It can be found in buildings, playing fields, cultivated fields, and open desert.

Enhydrina schistosi and *Hydrophis gracilis* in coastal waters. Other *Hydrophis* species are found in Arabian Gulf Waters.

STADTLANDER (1992) reported that in 1989 a total of 26 Euphrates soft-shelled turtles *Rafetus* (previously *Trionyx*) *euphraticus* was recorded in the Tigris River in Turkey and a total of at least 55 individuals in the Euphrates between Al-Falluyah and Hawr-al-Hammar in Iraq. The Iraqi observations are the first to be published since the early 1960's.

Of course the herpetofauna reflects the Iraqi climate and geography. As a consequence we find many desert species, few amphibians, and because the same habitats can be found elsewhere in the Middle East, little if any endemism. Nevertheless, in the three other vertebrate groups animals are found which are unique to Iraq. Obviously the wetlands of Mesopotamia are sufficiently large and have been isolated from other comparable wetland areas for a sufficient length of time to allow for the evolution of endemics. These include two species of mammals (*Erythronesokia bunnii* and *Gerbillus mesopotamiae*), one subspecies of mammal (*Lutra perspicillata maxwelli*), two species of birds (*Turdoides altirostris* and *Acrocephalus griseldis*), two subspecies of birds (*Tachybaptus ruficollis iraquensis* and *Anhinga rufa chantrei*), and several species and subspecies of fish, notably *Barbus sharpeyi*, *Leuciscus cephalus orientalis*, *Caecocypris basimi*, and *Typhlogarra widdowsoni* (SCOTT, 1995). As an aside, it is amazing to learn that lions (*Panthera leo*) survived in riverine thickets of the marshlands into the last century, but were finally exterminated when the Marsh Arabs acquired modern rifles during the First World War. The Leopard (*Panthera pardus*) is likewise extinct in lower Mesopotamia; there is only one record from the marshlands - an individual shot in 1945 just above Kut by the River Tigris.



Cerastes gasperettii.

Photo: Steve Markevich, <http://www.geocities.com/hotherps/reptiles.html>

EPILOGUE: A CHECKLIST

Using data from a variety of sources (e.g., ANDERSON, 1999; GASPERETTI, 1988; LEVITON et al., 1992; SZCZERBAK & GOLUBEV, 1996; IN DEN BOSCH, 1998, and in prep.; and other papers mentioned in Literature), I have compiled the following checklist of herp species that may be found in Iraq (see table).

I refrain from most taxonomic fine-tuning (subspecies) unless pertinent information is available (e.g. FRITZ & WISCHUF, 1997; JOGER & STEINFARTZ, 1995), but even then I am cautious (for instance IN DEN BOSCH, 2001b). I am conservative regarding newly proposed genera in the lacertids and colubrids and thus here still use *Lacerta* and *Coluber* where *Apathya* or *Hierophis* would be possible. Some species repeatedly surface in the literature with remarks like "requires confirmation", e.g. *Cyrtopodion heterocercum* (Blanford, 1874)

in ANDERSON (1999) concerning the lowland Basra record from NADER & JAWDAT (1976) for this gecko commonly found at higher elevations. Such species are indicated with a question mark. Sometimes species, or genera, seem absent simply because they have not yet been collected as a result of their secretive life-style (e.g. *Ophiomorus*: ANDERSON & LEVITON (1966); or *Blanus*), or because of recent taxonomic shake-ups (e.g. concerning agamids: RASTEGAR-POUYANI, 2000). Sometimes the dispersal in neighbouring countries leads to the assumption that species may also be distributed in Iraq (e.g. *Elaphe hohenackeri*). Occasionally new records for Iraq indeed expand the species list, e.g. *Eryx jayakari* reported in AFRASIAB & ALI (1989); SIVAN & WERNER (2003); and other papers (AFRASIAB, 1987; AFRASIAB, 1989; AFRASIAB & ALI, 1988). In many cases more research plus a proper synonymy is needed. One example would be *Coluber najadum dahlia* Schinz, 1883 (in LEVITON et al., 1992), later named *Coluber rubriceps* (Venzmer, 1919), and perhaps now better known as *Coluber collaris*. Another is the case of the *Lytorhynchus* taxa *diadema-gaddi-kennedyi* which are alternately treated as (colour) morphs, subspecies or species, or the recognition of *Malpolon monspessulanus fuscus* (Fleischmann, 1831) for Iraq.



Testudo graeca ibera.

Photo: H.A.J. in den Bosch

There is a remarkable number of fairly recent articles on amphibian and reptilian parasites from which the speculative presence of several Iraqi herp species can be deduced: AL-ABBADIE (1995): *Natrix tessellatus* [=tessellata]; AL-BARWARI & NASSIR (1983): *Bufo viridis*, *Hyla arborea* [=Hyla savignyi], *Rana ridibunda*, *Hemidactylus flaviviridis*, *Hemidactylus persicus*; AL-ZUBAIDY (1995): *Coluber ravergieri* [or *C. nummifer*?]; AL-ZUBAIDY (1997): *Trionyx* [=Rafetus] *euphraticus*; BOCHKOV & MIRONOV (2000): *Eublepharis angramainyu*; KUGI & MOHAMMED (1998): *Uromastix microlepis* [=? subspec. of *U. aegyptius*], *Agama nupta*; MARINKELLE & AL-MAHDAWI (1981): *Hemidactylus turcicus*; MOLAN & SAEED (1989): *Rana ridibunda*; MOLAN & SAEED (1990): *Testudo graeca*, *Clemmys* [=Mauremys] *caspica*, *Trionyx* [=Rafetus] *euphraticus*; RAHEMO & AMI (1995): *Bufo viridis*; SALIH (1995): *Coluber ventrimaculatus* [=ventromaculatus]; SALIH & RAHEMO (1990): *Gymnodactylus scaber*

[=*Cyrtopodion scabrum*], *Phyllodactylus elisae* [= *Asaccus elisae*]; SHAMSUDDIN & MOHAMMAD (1988): *Testudo graeca*, *Agama nupta*.

Records on marine reptiles are rare, not surprising considering the very short Iraqi coastline, and it is uncertain whether the scatteredly listed sea turtles and sea snakes (like *Hydrophis cyanocinctus* Daudin, 1803; *Pelamis platurus* (Linnaeus, 1766)) were really found within the territorial waters.

It is hoped, and expected, that in the near future a good overview of the Iraqi herpetofauna with a properly annotated checklist by American authors will become available. Then perhaps some good may come out of the Second Gulf War.



Male *Timon princeps kurdistanicus*.

Photo: S. Pederson



Female *Timon princeps kurdistanicus*.

Photo: H.A.J. in den Bosch



Coluber rubriceps.

Photo: H.A.J. In den Bosch

AMPHIBIA

Salamandridae

- Neurergus crocatus* Cope, 1862
Neurergus microspilotus (Nesterov, 1916)
Salamandra salamandra semenovi Nesterov, 1916
Triturus vittatus (Gray in Jenyns, 1835)

Bufo

- Bufo surdus luristanicus* Schmidt, 1952
Bufo viridis Laurenti, 1768

Hylidae

- Hyla savignyi* Audouin, 1812

Pelobatidae

- Pelobates syriacus* Boettger, 1889

Ranidae

- Rana camerani-macrocnemis* complex
Rana ridibunda Pallas, 1771

REPTILIA

Testudines

Cheloniidae

- Caretta caretta* (Linnaeus, 1758)
Chelonia mydas (Linnaeus, 1758)
Eretmochelys imbricata bissa (Rüppell, 1835)
Lepidochelys olivacea (Eschscholtz, 1829)

Dermochelyidae

- Dermochelys coriacea schlegelii* (Garman, 1884)

Emydidae

- Mauremys caspica caspica* (Gmelin, 1774)
Mauremys caspica siebenrocki Wischuf & Fritz, 1997

Trionychidae

- Rafetus euphraticus* (Daudin, 1802)

Testudinidae

- Testudo graeca ibera* Pallas, 1811

Sauria

Agamidae

- ?*Laudakia caucasica* (Eichwald, 1831)
Laudakia nupta (De Filippi, 1843)
Laudakia stellio (Linnaeus, 1758)
?*Trapelus agilis* (Olivier, 1804)
Trapelus ruderatus complex
Trapelus lessonae (De Filippi, 1865)
Phrynocephalus arabicus Anderson, 1894
?*Phrynocephalus maculatus longicaudatus* Haas, 1957

- Uromastyx aegyptius* (Forsskål, 1775)

- Uromastyx loricatus* (Blanford, 1875)

Gekkonidae

- Eublepharis angramainyu* Anderson & Leviton, 1966
Asaccus elisae (Werner, 1895)
Asaccus griseonotus Dixon & Anderson, 1973
Bunopus tuberculatus Blanford, 1874
Carinatogekko heteropholis (Minton, Anderson & Anderson, 1970)
?*Cyrtopodion heterocercum* (Blanford, 1874)
Cyrtopodion kotschy (Steindachner, 1870)
Cyrtopodion scabrum (Heyden, 1827)
Hemidactylus flaviviridis Rüppell, 1840
Hemidactylus persicus Anderson, 1872
Hemidactylus turcicus (Linnaeus, 1758)
?*Pristurus rupestris* Blanford, 1874
?*Ptyodactylus hasselquistii* (Donndorff, 1798)

- Ptyodactylus puiseuxi* Boutan, 1893

- ?*Stenodactylus affinis* (Murray, 1884)

- Stenodactylus doriae* (Blanford, 1874)

- Stenodactylus grandiceps* Haas, 1952

- Stenodactylus sleveni* Haas, 1957

- ?*Tropicolotes helenae fasciatus* Schmidtler & Schmidtler, 1972

Lacertidae

- Acanthodactylus boskianus* (Daudin, 1802)

- Acanthodactylus grandis* Boulenger, 1909

- Acanthodactylus opheodurus* Arnold, 1980

- Acanthodactylus orientalis* Angel, 1936

- Acanthodactylus robustus* Werner, 1929

- Acanthodactylus schmidti* Haas, 1957

- Acanthodactylus scutellatus hardyi* Haas, 1957

- ?*Eremias persica* Blanford, 1875

- Lacerta cappadocica* Werner, 1902

- Lacerta media* Lantz & Cyrén, 1920

- ?*Lacerta trilineata* Bedriaga, 1886

- Mesalina brevirostris* Blanford, 1874

- Mesalina guttulata* (Lichtenstein, 1823)

- Mesalina olivieri* (Audouin, 1829)

- Ophisops elegans* Ménétriés, 1832

- Timon princeps kurdistanicus* (Suchov, 1936)

Scincidae

- ?*Ablepharus kitaibelii* Bibron & Bory, 1833

- Ablepharus pannonicus* Fitzinger, 1823

- ?*Chalcides ocellatus* (Forsskål, 1775)

- Mabuya aurata aurata* (Linnaeus, 1758)

- Mabuya aurata septemtaeniata* (Reuss, 1834)

- Mabuya vittata* (Olivier, 1804)

Novoeumeces schneideri princeps
(Eichwald, 1839)
Scincus scincus conirostris Blanford,
1881

Amphisbaenidae

Blanus strauchi aporus Werner, 1898
Diplometopon zarudnyi Nikolsky, 1907

Varanidae

Varanus griseus (Daudin, 1803)

Serpentes

Typhlopidae

Typhlops vermicularis Merrem, 1820
Ramphotyphlops braminus (Daudin,
1803)

Leptotyphlopidae

Leptotyphlops macrorhynchus (Jan,
1860)

Boidae

Eryx jaculus (Linnaeus, 1758)
Eryx jayakari Boulenger, 1888

Colubridae

Coluber jugularis Linnaeus, 1758
Coluber nummifer Reuss, 1834
Coluber ravergieri Ménétriés, 1832
Coluber rubriceps (Venzmer, 1919)
Coluber rhodorhachis (Jan in Filippi,
1865)
Coluber rogersi (Anderson, 1893)
Coluber ventromaculatus Gray, 1834
Eirenis collaris (Ménétriés, 1832)
Eirenis coronella (Schlegel, 1837)
Eirenis coronelloides (Jan, 1862)
Eirenis decemlineata (Duméril, Bibron
& Duméril, 1854)

Eirenis lineomaculata Schmidt, 1939
Eirenis persicus (Anderson, 1872)
Lytorhynchus diadema (Duméril, Bibron &
Duméril, 1854)
Lytorhynchus kennedyi Schmidt, 1939
Malpolon moilensis (Reuss, 1834)
Malpolon monspessulanus (Hermann, 1804)
Natrix tessellata (Laurenti, 1768)
Psammophis schokari (Forsskål, 1775)
Rhynchocalamus melanocephalus satuni
(Nikolsky, 1899)
Spalerosophis diadema cliffordii (Schlegel,
1837)
Telescopus nigriceps (Ahl, 1924)
Telescopus tessellatus martini (Schmidt,
1939)

Elapidae

Walterinnesia aegyptia Lataste, 1887

Viperidae

Cerastes gasperettii Leviton & Anderson,
1967
Echis carinatus sochureki (Stemmler, 1969)
Macrovipera lebetina obtusa (Dwigubsky,
1832)
Pseudocerastes persicus fieldi Schmidt,
1930
Pseudocerastes persicus persicus (Duméril,
Bibron & Duméril, 1854)
Vipera raddei kurdistanica Nilson & Andrén,
1986
Hydrophiidae
Enhydrina schistosa (Daudin, 1803)
? *Hydrophis cyanocinctus* Daudin, 1803
Microcephalophis gracilis (Shaw, 1802)

? = needs further confirmation

A total of 10 amphibian and 100 reptile species are reported for Iraq. The Testudines are represented by 8 species, the lizards by 52 species (of which 12 need further confirmation), the amphisbaenids by two species, one varanid, and the snakes by 37 species (one sea snake needs further confirmation). This means that even discounting the species that need additional corroboration, the lizards are the group with the highest species richness in Iraq, viz. 41 species, closely followed by the snakes. Within the Sauria the skinks and lacertids (*Acanthodactylus* is the best represented genus in Iraq) show the highest diversity. The almost four times larger and geographically and climatologically more diverse neighbouring Iran is inhabited by 125 lizard species (ANDERSON, 1999). In comparison Iraq does fairly well with its over fifty saurians. This serves as one more indicator that this country is much more than just a sandbox.

SUMMARY

The physical geography of Iraq is summarised. Using data from the relevant literature and current information from the Internet, a very provisional checklist of Iraqi amphibians and reptiles is presented. Ten amphibian species are reported for Iraq, and exactly 100 reptile species.

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