SOME RECORDS OF REPTILES FROM THE PALESTINIAN TERRITORIES

Elias N. Handal,1 Zuhair S. Amr,2 and Mazin B. Qumsiyeh1*

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Distributional data for 36 species belonging to 13 families are presented for the reptiles of the Palestinian Territories. Scientific names were updated based on recent literature. This is the first account on the reptiles of West Bank (Palestinian Territories) and it addresses also challenges and needs for expanding such studies to serve as initial databases and in planning environmental conservation measures.

Keywords: Reptiles; Palestinian Territories; distribution; snakes; lizards.

INTRODUCTION

Reptilian biodiversity in Western Asia is relatively high due to its geologic history and being a connection between Asia, Europe, and Africa. Herpetological studies in Palestine started in the 19th century (Boettger, 1879; Tristram, 1884; Hart, 1891; Peracca, 1894; Werner, 1898). In this region we find both endemic and non-endemic elements belonging to various biogeographic zones: Ethiopian, Mediterranean, Saharo-Arabian, and Irano-Turanian (Werner, 1988; Amr and Disi, 2011). While significant studies were conducted on the reptiles in the areas occupied by Israel since 1948 (Barbour, 1914; Flower, 1933; Haas, 1943 and 1951; Schmidt, 1939; Mendelsohn, 1963 and 1965; Bar and Haimovitch, 2012), there are virtually no studies by local scientists on the herpetology of the occupied West Bank part. The Palestinian Territories have been recognized as a new state of Palestine by various international bodies including the UN General Assembly. A single publication on the reptiles of Gaza Strip was published by Abd Rabou et al. (2007) including 18 species of reptiles. The biodiversity of the Palestinian Territories was severely affected by the Israeli practices; including land confiscation, building of the segregation wall, soil erosion, damage to water resources, and overall habitat loss (Abdallah and Swaileh, 2011; Isaac and Hilal, 2011; Qumsiyeh, 1996; Qumsiyeh et al., 2014; Salman et al., 2014).

After the establishment of the Palestine Museum of Natural History (PMNH) in 2014, one of its obligations was to study the neglected biodiversity of the West Bank. In this communication we report and document 36 species of reptiles at the collection of the Palestine Museum of Natural History.

MATERIAL AND METHODS

Specimens were collected from 53 localities across the Palestinian Territories of the West Bank through several field trips by the PMNH team (Table 1). All collected specimens are deposited at PMNH.

RESULTS AND DISCUSSION

36 species of reptiles representing 13 families (Testudinidae, Geoemydidae, Gekkonidae, Phyllodactylidae, Chamaeleonidae, Agamidae, Scincidae, Lacertidae, Typhlopidae, Boidae, Colubridae, Atractaspididae and Viperidae) were identified.

Family Testudinidae

Testudo graeca terrestris Forskål, 1775 (Fig. 1A)


Remarks. The spur-thighed tortoise is associated with the Mediterranean regions of the West Bank and...
northern Palestine. It inhabits forested as well as shrub lands. It is under severe threat due to urban expansion and local trade and is listed as vulnerable according to the IUCN Red list.

Family Geoemydidae

*Mauremys rivulata* (Valenciennes, 1833) (Fig. 1B)

**Material examined.** Observed in Ein El Beida, Nablus (Wadi Baidhan), and Jenin in 2014 and 2015.

**Remarks.** This is the only freshwater turtle known from the West Bank and Jordan. It occurs along the Jordan River in the Jordan Valley as well as inland freshwater habitats and polluted water resources in the Mediterranean area. An account on its morphometrics, habitat preference, growth and feeding in Jordan was published by Rifai and Amr (2004 and 2006). In a subsequent visit we saw that Ein El Beida water was being diverted and open surface water significantly diminished and we were able to note only two specimens.

**TABLE 1.** List of Visited Localities and Their Coordinates

<table>
<thead>
<tr>
<th>Location</th>
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<tr>
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<td>Al Qarn</td>
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<td>Az Zawiyah</td>
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<td>At Tyba</td>
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<td>Hindaza</td>
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**Family Gekkonidae**

*Hemidactylus turcicus* (Linnaeus, 1758) (Fig. 1C)


**Remarks.** Moravec et al. (2011) revised the phylogeny of *Hemidactylus turcicus* of the Middle East based on mitochondrial DNA, revealing five phylogenetic lineages. *Hemidactylus dawudazraqi* was described to replace *H. turcicus* form Jordan and southern Syria. The systematics of the West Bank populations remains unknown, while those from the Golan were assigned to *Hemidactylus cf. turcicus* (Moravec et al., 2011). It was collected from all ecozones from arid regions such as Mar Saba to Mediterranean biotopes, and was encoun-
tered in natural and man-made habitats, in buildings, houses, around plantations, on tree-trunks and on hard ground. The Turkish gecko is a nocturnal species.

*Mediodactylus kotschyi* (Steindachner, 1870) (Fig. 1D)

**Material examined.** PMNH 3833, Wadi Quff, 16.3.2014. PMNH 6152, Bethlehem, 5.4.2015. PMNH 7146, Az Zawiya, 8.10.2015.

**Remarks.** Bauer et al. (2013) removed *kotschyi* from the genus *Cyrtopodion* based on molecular data. *Mediodactylus kotschyi* is distributed along the Aegean Islands, in Greece, the Balkans, Cyprus, southern Italy, the Levant reaching Georgia and Iran as well as south Crimea (Ananjeva et al., 2006; Sindaco and Jeremcenko, 2008). This species was found to occur in the oak and coniferous forests of the Mediterranean ecozone. Ajtić (2014) per-
formed morphological, ecological, and biogeographic survey of the species in its main range and suggests that our specimens here and those from Turkey belong to the subspecies orientalis. Our records add the most southern distribution for the species in the Eastern Mediterranean region. The specimen from Wadi Quff was obtained from under a rock in a mixed (oak/pine) wooded area while that in Bethlehem from a trunk of a coniferous tree.

**Stenodactylus sthenodactylus** (Lichtenstein, 1823)

**Material examined.** PMNH 1560, Ein Fassyil, 22.6.2012.

**Remarks.** The elegant gecko was found along the Dead Sea basin and further into the central Jordan Valley where it inhabits areas of loose soil with sparse vegetation.

**Tropicolotes nattereri** Steindachner, 1901 (Fig. 1E)


**Remarks.** This species is associated with the arid regions along the Jordan Valley and the Dead Sea Basin. Reported as Tropicolotes steudneri from west of the Dead Sea area (Haas, 1943)

**Family Phyllodactylidae**

**Ptyodactylus guttatus** Heyden, 1827 (Fig. 1F)


**Remarks.** This rather common gecko inhabits the area in the East of the Dead Sea and extends northwards into the Jordan Valley as well as the Mediterranean mountains. This species has a high geographic variability but all geographic forms intergrade around the Dead Sea region. In southern Palestine *P. guttatus* and *hasselsquistii* occurs symmetrically, while in the north *P. guttatus* and *P. puiseuxi* are parapatric (Werner and Sivan, 1994).

**Family Chamaeleonidae**

**Chamaeleo chamaeleon recticrista** Boettger, 1880

**Material examined.** PMNH 7401, Bir Zeit, no date. PMNH 7402, Ein Yabrud, 28.8.2014. Observed and photographed specimens from Nablus, Bethlehem, Beit Sahour, Wadi Quff, Al Qurn, Al-Walaja, Al-Makhrouh, and Jericho.

**Remarks.** The European chameleon is common in natural forests and areas with cultivated trees in the Mediterranean region. Vegetation cover is essential for its occurrence. Flower (1933) indicated several localities from Palestine; including Gaza and Jenin.

**Family Agamidae**

**Stellagama stellio brachydactyla** (Haas, 1951)


**Remarks.** The genus Stellagama was erected by Baig et al. (2012) to include species of the former genus Stellio Laurenti, 1768. Daan (1967) reported that the populations in Syria, Lebanon, and Palestine are likely to form transitional groups in the north and in the south, where there is a gradual transition to surrounding populations. It inhabits areas of fairly hard substrates and prefers stony outcrops. Werner (1971) indicated the presence of this subspecies in southern Jordan, southern Palestine, and Sinai. It basks on a bush, stone, others and hides under bush, grass, stone or sand. Bar and Haimovitch (2012) stated that Stellagama stellio picea is distributed in the Mediterranean region from Beir Al Sabah southwards into the north. This is subspecies inhabits the black lava deserts of Jordan and Syria (Werner, 1992) and is not found in Palestine. This is perhaps the most common reptile in the occupied West Bank and we observed it in significant numbers in just about every locality visited.

**Family Scincidae**

**Ablepharus rueppellii** (Gray, 1839) (Fig. 2A)


**Remarks.** Festa’s skink lives in the Mediterranean ecozone where it inhabits open areas and oak or pine forests. Roll et al. (2013) found this species to penetrate into the Al Naqb Desert and showed a map with localities in the northern and central areas of the West Bank.
*um spinosum* bushes and piles of stones. Flower (1933) mentioned Jerusalem as a locality for this lizard.

**Ophisops elegans** Ménétries, 1832


**Remarks.** This is rather a common species inhabiting the Mediterranean region, avoiding extreme dry habitats.

**Mesalina guttulata** (Lichtenstein, 1823) (Fig. 3B)


**Remarks.** This is a common lizard encountered in many localities in the Jordan Valley and the arid parts of the Mediterranean such as Bani Na‘im.

**Family Typhlopidae**

**Xerotyphlops vermicularis** (Merrem, 1820)

**Material examined.** PMNH 6997, Wadi Quff, spring 2014. PMNH 7005, Bethlehem, 21.5.2015.

**Remarks.** Hedges et al. (2014) proposed a new taxonomic framework for the family Typhlopidae based on molecular data. They erected a new genus, *Xerotyphlops*, for blind snakes of the Sahara, Socotra Island, southwestern Asia, and southeastern Europe to replace the genus *Typhlops*. This is a rather common species in Palestine, inhabiting humid areas and avoiding desert habitats (Haas, 1951). A specimen was collected from a house in Bethlehem, while the other was collected from forested humid area undertones.

**Letheobia simonii** (Boettger, 1879)

**Material examined.** PMNH 1621, Beit Sahour, 12.9.2012.

**Remarks.** Hedges et al. (2014) placed Rhinotyphlos *simonii* into the genus *Letheobia* Cope, 1868 based on molecular data. This species was originally described from Haiffa, Palestine (Boettger, 1879). Previously collected from Jericho (Peracca, 1894) and Gaza and Beni Naim (Haas, 1951).

**Family Boidae**

**Eryx juculus** (Linnaeus, 1758) (Fig. 4A)

**Material examined.** PMNH 7006, Qalqiliya, 18.6.2015.

**Remarks.** Collected previously from between Rafah and Gaza (Flower, 1933), the Jordan Valley (Schmidt, 1939) and around Jerusalem (Haas, 1951). This is a common species in most of the Mediterranean habitats of the West Bank (Bar and Haimovitch, 2012).

**Family Colubridae**

**Dolichophis jugularis** (Linnaeus, 1758)


**Remarks.** This is a rather common species in the Mediterranean region of the West Bank (Bar and Haimovitch, 2012). It was collected from near Ramallah (Flower, 1933).
Chalcides guentheri Boulenger, 1887 (Fig. 2C)


Remarks. Chalcides guentheri is endemic to the southern Levant region (Werner, 1988; Hraoui-Bloquet et al., 2002; Disi et al., 2001). It was collected from the Mediterranean region which is characterized by high rainfall and a terra rossa soil type. It rarely inhabits open areas. It is a secretive species that is seldom seen.

Chalcides ocellatus Forskål, 1775 (Fig. 2D)


Remarks. Tristram (1884) stated that it is common in mountains, dry regions and deep valleys in Palestine. According to Haas (1943), this species is found throughout Palestine in the hills as well as in the coastal plains.

Trachylepis vittata (Olivier, 1804) (Fig. 2B)


Remarks. The Bridled skink inhabits banks of irrigation canals, bushes and damp soils and humid areas. According to Flower (1933), T. vittata is widely distributed in Palestine.

Family Lacertidae

Phoenicolacerta laevis (Gray, 1838) (Fig. 3A)


Remarks. This lizard lives in the forested areas of the Mediterranean ecozone, especially areas dominated by oak or pine trees and the upper Jordan valley where it inhabits broken, rocky ground often around Sarcopoteri-
**Eirenis coronelloides (Jan, 1862)**


Remarks. There are two color forms of this snake in the Middle East; the first one is totally light brown and the second one is with four dark bands extending from the head to tail (Shwayat et al., 2009). It is found in the Mediterranean area and under rocks. Diet of this snake consists of spiders, Acrididae, caterpillars and beetles (Shwayat et al., 2009).

**Eirenis decemlineatus (Duméril, Bibron et Duméril, 1854)**


Remarks. This is a common species collected from several localities in the West Bank. Haas (1951) stated that this is the commonest species in Jerusalem, with a wide distribution in Palestine, avoiding arid regions. Other records come from Jerusalem (Barbour, 1914; Flower, 1933) and the Jordan Valley (Schmidt, 1939).

**Hemorrhois nummifer (Reuss, 1834)** (Fig. 4B)


Remarks. This is a common species collected from several localities in the West Bank. Haas (1951) stated that this is the commonest species in Jerusalem, with a wide distribution in Palestine, avoiding arid regions. Other older records come from Jerusalem (Barbour, 1914; Flower, 1933) and the Jordan Valley (Schmidt, 1939).
Eirenis lineomaculata Schmidt, 1939 (Fig. 4C)


Remarks. This species was originally described by Schmidt (1939) from the Palestinian side of the Jordan Valley. Eirenis lineomaculata is an endemic species to the Levant (Shwayat et al., 2009; Amr and Disi, 2011). It inhibits the Mediterranean area and was found under stones.

Eirenis rothi Jan 1863 (Fig. 4D)


Remarks. Eight specimens were collected from various localities across the Mediterranean region of the West Bank. Collected previously from near Jerusalem (Schmidt, 1939). In Jordan, it was found to feed on centipedes (Shwayat et al., 2009).

Platyceps collaris (Müller, 1878) (Fig. 4E)


Remarks. This is a rather common species found in the Mediterranean region. Collected from Jerusalem (Barbour, 1914) and Mount Scopus (Schmidt, 1939).

Platyceps rhodorachis (Jan, 1865) (Fig. 4F)

Material examined. PMNH 6990, Za’tara, 1.5.2014. PMNH 7013, Za’tara, 27.5.2015.

Remarks. Both specimens were collected from arid regions to the east of Bethlehem. The cliff racer is a diurnal or crepuscular species that inhabits extremely dry rocky and stony habitats, with a wide distribution extending from North Africa, across Arabia and the Middle East to Afghanistan (Gasperetti, 1988). Recently, this species has been observed in the north eastern coastal plains (Bar and Haimovitch, 2012).

Malpolon insignitus (Geoffroy De St-Hilaire, 1809)

Material examined. PMNH 5892, Za’tara, 17.3.2015. PMNH 6027, Hindaza, 14.3.2015. PMNH 6713, Ayda Camp, 2.6.2015.

Remarks. It inhibits the humid and arid Mediterranean areas. Haas (1951) mentioned a specimen from Jerusalem.

Natrix tessellata (Laurenti, 1768)

Material examined. Observed in Wadi Qana and Suleiman Pool.

Remarks. Natrix tessellata is the only fresh water-associated snake that lives in close proximity to permanent water bodies in Palestine. Due to intensive water extraction and divergent of water resources, populations of the snake are declining in the Middle East (Amr et al., 2011).

Psammophis schokari (Forskål, 1775)

Material examined. PMNH 7114, Za’tara, 30.7.2015.

Remarks. Kark et al. (1997) discussed polymorphism among P. schokari, and found three pholidotically indistinguishable morphs: striped, non-striped, and rear-striped populations. They attributed such morphs to be correlated to rainfall, solar radiation and vegetation. Boettger (1879) mentioned a specimen from Jerusalem.

Rhyncocalamus melanocephalus (Jan, 1862) (Fig. 4G)


Remarks. Haas (1951) stated that this is a widely distributed species that avoids arid regions. Localities indicated are within the Mediterranean zone with relatively humid environments. Schmidt (1930) reported a specimen collected from Jerusalem.

Telescopus nigriceps (Ahl, 1924)

Material examined. PMNH 6995, Bethlahem, no date.

Remarks. Bar and Haimovitch (2012) considered the population of Telescopus nigriceps in Palestine as Telescopus fallax syriacus. Disi et al. (2001) considered that T. nigriceps population in Jordan has two forms; the true or typical form “T. nigriceps” found in flat desert areas at low elevations and the form “T. cf. nigriceps” known from mountainous areas at high elevation. Comparison between T. nigriceps and T. fallax syriacus was provided by Göçmen et al. (2007). This is a nocturnal snake, feeds on lizards, bird eggs and small mammals (Amr and Disi, 2011).
Family Atractaspididae
*Micrelaps muelleri* Boettger, 1880

**Material examined.** PMNH 7004, Jerusalem, 7.10.2013. PMNH 7011, Wadi Al Makhour, 16.7.2015.  
**Remarks.** Mueller’s ground viper was originally described from Jerusalem (Boettger, 1880). This species is restricted to the Mediterranean region and can endure low temperatures (Haas, 1951). Amr et al. (1997) gave an account on *M. muelleri* in Jordan, where it is confined to northern humid part of the country.

*Atractaspis engaddensis* Haas, 1950

**Material examined.** PMNH 7343, Jubbat Adhdhib, 18.1.2013.  
**Remarks.** The Ein Gedi mole viper was described by Haas (1950) from Ein Gedi, a locality close to Jubbat Adhdhib. This is a strictly fossorial viper that seldom emerges above ground. It could be encountered in vegetated places in hot and humid areas. In the West Bank, its distribution extends from around the Dead Sea basin and along the arid regions of the Jordan Valley (Bar and Haimovitch, 2012).

Family Viperidae
*Daboia palaestina* (Werner, 1938) (Fig. 4H)

**Material examined.** PMNH 7008, Hebron, 5.7.2015.  
**Remarks.** The Palestine viper is associated with forested and cultivated regions of the Mediterranean region of the West Bank. Mendelssohn (1963) recovered rodents, the greater white-toothed shrew, the goldfinch, and reptiles consumed by the Palestine viper. Amr and Disi (1998) recovered remains the house sparrow and the Eu-reptiles consumed by the Palestine viper. Amr et al. (1997) gave an account on *M. muelleri* in Jordan, where it is confined to northern humid part of the country.

*Echis coloratus terraesanctae* Babocsay, 2003

**Remarks.** All specimens were collected from rocky areas close to the Dead Sea basin. The carpet viper is abundant in the steep, dry rocky hillsides of the mountains which surround the Jordan Valley (Amr and Disi, 2011). It feeds on rodents, lizards, amphibians and arthropods (Mendelssohn, 1965). Babocsay (2003) described this subspecies based on specimens collected around the Dead Sea area and the Jordan Valley. This subspecies differs from *Echis coloratus coloratus* by its fewer ventral scales (187.8 – 190.1 in males and females respectively) and the high number of dorsal scales.

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