

Reptiles and Amphibians of Palestine



By Zuhair Amr and Elias Handal

any people become distressed when they see a gecko on their wall and may not be aware of the fact that this little creature is highly beneficial in controlling insects. Others panic when they see a snake in a field, even though these animals are beneficial components of our ecosystem, and most of them are not poisonous. The herpetology (science of studying amphibians and reptiles) of Palestine is an interesting subject not just because it dispels myths but also because Palestine's location at a crossroads between Asia, Europe, and Africa has given us fascinating diversity of reptiles that includes many endemic species. The geological features of this small country have shaped the diversity of amphibians and reptiles, producing species that live in the Mediterranean mountains, others that thrive in the extreme arid regions, and everything in between. In this region we can find reptiles belonging to various bio-geographic zones such as the Ethiopian, the Mediterranean, the Saharo-Arabian, and the Irano-Turanian.

Modern scientific studies of Palestinian reptiles started in the nineteenth century. Today, we know of 98 species of reptiles and amphibians from historic Palestine, including 7 species of amphibians and 91 species of reptiles (9 freshwater, marine, and land tortoises; 40 snakes; and 42 lizards) represented in 26 families. Given its small area, Palestine enjoys a rich herpeto-fauna with regard to its total area.

Surveying these species by region, we find that many reptiles inhabit Al-Naqab Desert and have remarkable desert adaptations. We can find the Arabian Horned Viper, Sandfish Skink, Ornate Spiny-tailed Lizard, Al-Naqab Tortoise, and other small lizards and geckos that are able to live under conditions of extreme heat and aridity. There are coastal species, such as the African Soft-shelled Turtle, and marine species

The Lebanon Lizard.



such as the Green and Loggerhead turtles.

Others are aquatic and live in freshwater wetlands, such as the Spotted Salamander and the Hula Painted Frog that was believed extinct after Israel drained the Hula Wetlands in the 1950s but apparently resurfaced when a small area was rehabilitated.

The reptiles and amphibians of the West Bank and Gaza are much less studied than those of other parts of Palestine. In a recent study conducted by the Palestine Museum of Natural History (PMNH), a total of 36 species of reptiles that represent 13 families (Testudinidae, Geoemydidae, Gekkonidae, Phyllodactylidae, Chamaeleonidae, Agamidae, Scincidae, Lacertidae, Typhlopidae, Boidae, Colubridae, Atractaspididae and Viperidae) were identified in the West Bank.

If we differentiate these species according to habitat types, reptiles of the Mediterranean region include

lizards, such as the European Chameleon, the Starred Agama, and the Lebanon Lizard. Chameleons are a fascinating species with a laterally compressed flattened body and limbs adapted to hold tree branches through opposing fingers. They have the incredible ability to change their color in a matter of seconds to match their surrounding by relocating pigments in different layers of their skin that thus affect the reflection of light. The different colors are in fact not only an adaption to their surroundings, they can also indicate the mood and physical condition of the individual. In addition, these amazing animals have a 360-degree arc of full vision around their bodies and can extend their tongues almost one and a half times the length of their body to capture their prey.

Forests of Palestine house some unique species, some of which can be observed on tree trunks, such as the brilliantly colored Eastern Balkan Green Lizard that is mostly seen on pine trees and Kotschy's Gecko that matches the bark of oak trees, whereas Festa's Skink lives among the understory leaf litter, especially in oak forests.

Kotschy's Gecko has small tubercles on its back and tail.





Festa's Skink is also known as Rüppel's Snake-eyed Skink.

The arid regions of the southern West Bank and along the Jordan Valley host several species of reptiles that are adapted to the harsh conditions that develop especially during summertime. Several species of geckos known from these areas (e.g., Elegant Gecko and Natterer's Gecko) are active during the night to avoid high temperatures and water loss. The Small-spotted Lizard and Bosk's Fringe-toed Lizard are quite common. The Ein Gedi Mole Viper is a poisonous endemic species that lives in the arid regions around the Dead Sea, and the Arabian Saw-scaled Viper is another venomous snake known to inhabit rocky terrain in the Jordan Valley.

The freshwater habitat (streams, ponds, and irrigation canals) is home to the Western Caspian Turtle, the Dice Snake, the Levant Green Frog, and the Tree Frog.

If we consider vulnerability, the surviving amphibians of Palestine include the Syrian Spade-footed Toad (*Pelobates syriacus*) as one of the most threatened species. This toad inhabits seasonal ponds formed shortly after rainfall in the Salfit area. Habitat loss due to changes in land use is the major threat that faces this species. Its populations are declining in many regions of its distribution range. This species requires immediate protection measures to ensure its survival in the limited locations where it is known.

The Western Caspian Turtle. (Although tortoises are land animals, turtles live in or near water.)



The threatened Syrian Spade-footed Toad has protruding eyes with vertically split pupils.

The Spur-thighed Tortoise, called *qurqa'a* in Arabic, is threatened partially because many people remove them from their habitats and keep them in their gardens without knowing how to properly care for them or breed them, so they end up dying – and are replenished by more animals taken from the wild!



The threatened Spur-thighed Tortoise.

Some unique lizards that can be seen in any area of the West Bank include the Gunther's Skink, with its shiny light-brown color, which moves like a snake, and the Glass "Snake" that is, in fact, a large, limbless lizard that is often confused with a snake.

Snakes of the Mediterranean region include the unusual Blind Worm Snake. This pinkish, thin snake is similar in many ways to an earthworm. Its

eyes are rudimentary and covered by scales. But we can also find the Syrian Black Snake, the Narrow-striped Dwarf Snake, the Palestine Viper, the Striped Dwarf Snake, Roth's Dwarf Snake, the Coin Snake, Montpellier Snake, the Red Whip Snake, Mueller's Ground Viper, and the Black-headed Cat Snake.

Snakes are feared much more than they deserve. Although a relatively large number of snake species live in the

West Bank (27 have been recognized so far), most of them are not venomous. Snakes are an important part of the food chain in healthy ecosystems because most of them feed on a wide range of animals such as rodents, terrestrial invertebrates, frogs, toads, and birds, as well as other reptiles. Some non-poisonous snakes even eat poisonous snakes. Small snakes feed on scorpions, centipedes, and other insects. For instance, the Coin Snake feeds on small birds, whereas the Montpellier Snake feeds mostly on toads and frogs. Thus many snakes are considered to be friends of farmers. The Syria Whip Snake, locally known as *arbeed* or *haneesh*, is one such species and important to protect around farms because it keeps agricultural pests such as rodents in check.

Only four snakes are considered seriously venomous in the West Bank. They are not all found in the same area; one species is confined to the Mediterranean mountains, while the other three survive in arid habitats. Thus, the likelihood of encountering a poisonous snake while on an excursion in any area of the West Bank is small. The Palestine Viper is found in the Mediterranean regions and its bite can be lethal if not attended to with anti-venom at a hospital (the few fatalities that occurred during the past few years from snake bites were largely from this species). This is a heavily built viper with a distinctive triangular head covered with Y-shaped

streaks and a zigzagged dorsal pattern of connected spots (the snake with unconnected diamond spots on the back mimics this but is not poisonous). The Arabian Saw-scaled Viper is also considered deadly. Both vipers possess hemotoxins that cause blood hemolysis (rupture or destruction of red blood cells). The Ein Gedi Mole, a black snake that can be confused with the Syrian Whip Snake, is one of the most venomous snakes

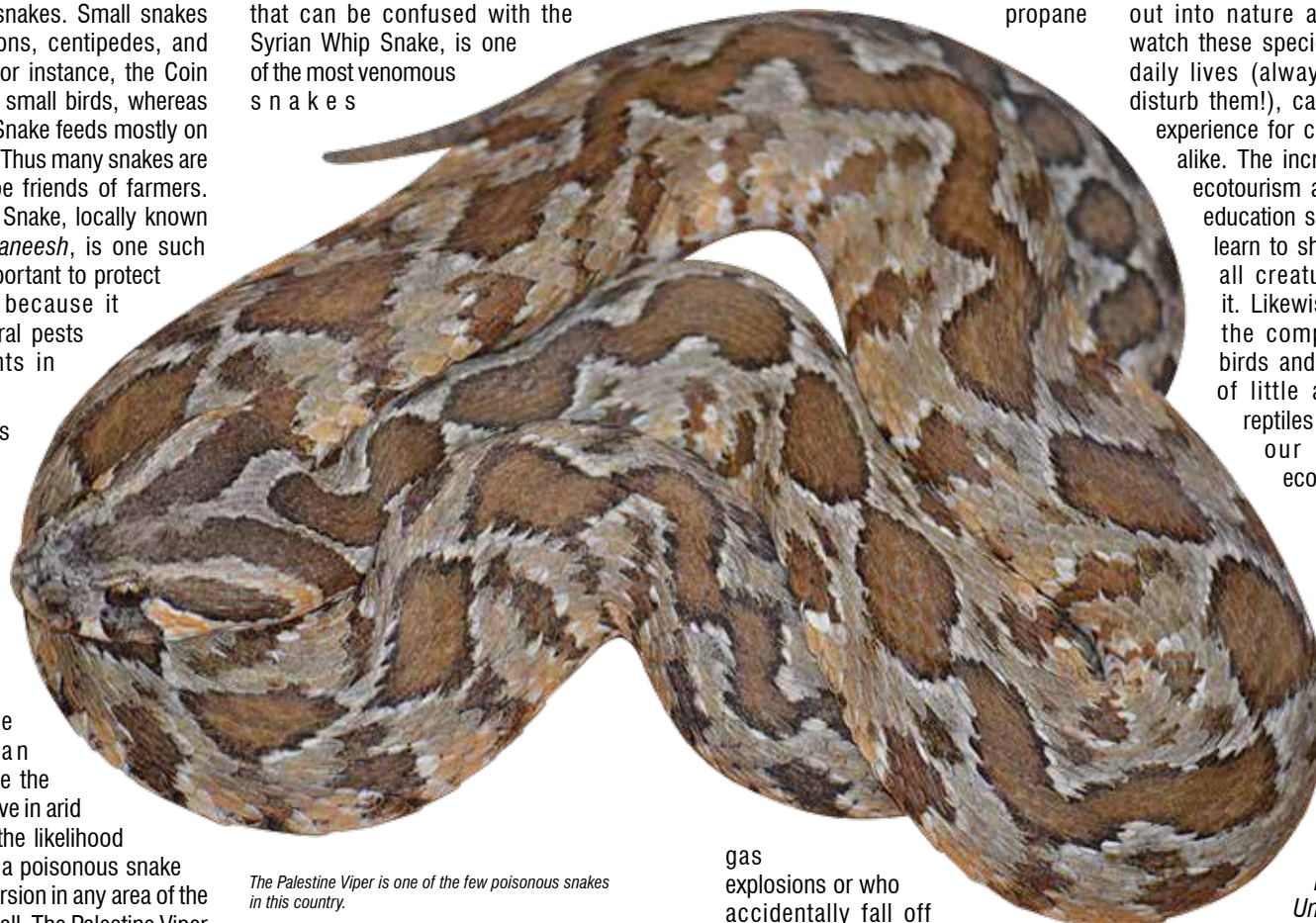
personal protection, while in the field or when snakes are encountered, it is not recommended to handle snakes if one is not knowledgeable about them (this is preferably left to a zoologist). Our readers should not be too alarmed by this information because there are certainly more people who die from household propane

to develop a better understanding and to break the instinctive fear between human beings and reptiles, particularly snakes. The staff of the PMNH not only engage in education but are also willing (as are many others) to respond to calls if people are concerned about certain animals in their neighborhood (tel. 277-3553). However, to venture out into nature and occasionally watch these species go about their daily lives (always careful not to disturb them!), can be an amazing experience for children and adults alike. The increasing interest in ecotourism and environmental education shows that we can learn to share this land with all creatures that inhabit it. Likewise, we can enjoy the company not just of birds and flowers but also of little amphibians and reptiles doing their bit in our interconnected ecosystem.

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Article photos courtesy of PMNH.



The Palestine Viper is one of the few poisonous snakes in this country.

in Palestine, owing its lethality to sarafotoxins that affect the heart muscle. Finally, there is the Black Desert Cobra that is hard to encounter, with distribution along the lower Jordan Valley; its venom contains neurotoxins (which affect the nervous system). For

gas explosions or who accidentally fall off their roofs than who die from snake bites in Palestine. Snakes are also notoriously shy and afraid of people, and they have no reason to bite a person unless they feel threatened.

Public awareness about these mysterious animals is the first step