

Animal Biodiversity in Palestine



By Mazin Qumsiyeh

At the crossroads of three continents, Palestine is located in the western part of the Fertile Crescent that connects Africa with Eurasia. This location and the associated geologic activities over the past 100 million years have ensured a unique and rich fauna, flora, and human history. The diverse habitats include five ecozones that range from the Central Highlands to the Semi-Coastal Region, Eastern Slopes, the Jordan Rift Valley, and the Coastal regions, and cover four bio-geographical regions (Mediterranean, Irano-Turanian, Saharo-Arabian, and Sudanese/Ethiopian). It is thus not surprising that this small country is biologically more diverse than some countries ten times its size.

Tens of thousands of years ago, early humans initially migrated out of their region of origin in southeastern Africa to this part of the world, and not much later, farther on. The Fertile Crescent's mild weather and rich soils allowed for such a wide variety of wild plants and animals to thrive that humans in turn were able to flourish by harvesting them from nature. About 12,000 years ago the people of this region were among the first to rely on agriculture when they domesticated wheat, barley, lentils, and chickpeas, and raised goats and camels. This transition from a hunter-gatherer lifestyle to settled agricultural and pastoral life made possible an increase in human population and the development of civilization and religious beliefs among first the local Natufian and later the Canaanitic peoples. Over time, a diversity of religious beliefs evolved here that led to its being considered a Holy Land for nearly half the earth's human population.

Palestine's diverse habitats have allowed for thousands of animal species to evolve, many of them unique to our country. It furthermore has provided ideal conditions for hundreds of millions of birds that



The caracal is a nocturnal animal and difficult to observe.

pass here on their annual migration between Europe and Africa. Yet human interventions, especially since the industrial revolution, have resulted in a strong decline of a previously amazing animal diversity of life. Animals that have become extinct in Palestine over the past few hundred years include ostriches, the fishing owl, the Syrian brown bear, the roe deer, the lion, and the cheetah. Lions lingered perhaps until the thirteenth century. The last cheetah remained in the distant hills in our countries up until the early 1900s. The large animals that remain, though endangered, include leopards, gazelles, wolves, vultures, and caracal, for which illegal hunting and destruction of habitats remain the main sources of threats.

Scientists prefer the term biodiversity conservation to wildlife

conservation when talking about animal (and plant) protection. "Wildlife" is sometimes used to refer to bigger animals such as mammals, birds, and reptiles. One could argue that humans are the wildest of all animals for their destructive impact on the environment. Only since the late twentieth century did the conservation of biological diversity become recognized as an urgent issue when scientists observed the



The Middle East Tree Frog is endemic to the region and is threatened by human habitat destruction.



Hyraxes might resemble rodents at first glance, but they have hooves and two caniniform incisors that betray their common ancestry with elephants.

significant decline in biodiversity that has accompanied industrialization and human-induced climate change. Important in the recognition of the dangers to our natural surroundings were the publication of the Global Biodiversity Strategy and the adoption of the Convention on Biological Diversity (CBD) that was signed at the Earth Summit in Rio de Janeiro (both in 1992).

In February 2002, special focus was given to Palestine at the Seventh Special Session of the Governing Council/Global Ministerial Environment Forum, held in Cartagena, Colombia, when a resolution was adopted concerning the situation of the environment in the occupied Palestinian territories (oPt). The council requested that the United Nations Environment Program (UNEP) carry out a desk study as a first step in the implementation of a decision to support and advance environmental conservation in the oPt. The resulting study, even though it lacked important details, identified major areas of environmental threats (UNEP, 2003). In 2015, its findings were corroborated and presented in more detail by a report that was issued in compliance with

the Convention on Biological Diversity by the Environmental Quality Authority (EQA, 2015). This report estimates that over 50,000 species live in Palestine, including over 540 birds and 100 mammal species. Yet much more work remains to be done to map these in a scientific way, and we estimate that one-third of the invertebrate species in historic Palestine are still to be described and named. Some may go extinct even before they are described by scientists.

Objective studies of animals in the oPt have been limited, compared to nearby areas. Research in general still lags behind in our area.* Most studies of the fauna and flora within Palestine were undertaken by Western visitors who came on short trips to study the "Holy Land," many of them connected to Western empires, such as Rev. Canon Henry Baker Tristram who conducted the first full survey of Palestinian fauna in the second half of the nineteenth century. Zionists in the early days of the movement saw the value of cataloging and understanding native animals and plants. One of the first native Palestinians who engaged in faunal studies was Dr. Sana Atallah,

As an ibex ages, its horns may grow long enough to curve all the way down to its back.

who performed a number of studies from 1962 until his untimely death at the age of 27 in 1970. Since then, only few and sporadic research studies had been undertaken by local scientists before biodiversity research became more relevant in light of the deteriorating environmental situation. Examples include a research paper on the decline in animal biodiversity in the Bethlehem region due to human interventions (including the Separation Wall and settlements), and the Palestine Museum of Natural History (PMNH) at Bethlehem University has published fascinating studies on freshwater snails, scorpions, butterflies, birds, amphibians, and reptiles.

One of the most remarkable large mammals still found in large numbers is the ibex (*badan* in Arabic), a mountain goat that flourishes around the springs near the Dead Sea and is an amazing climber. The males have large curved horns, and during mating season the sound of these horns hitting each other reverberates in the hills of the Jordan Valley (*al-Ghor*). The ibex is still hunted by wolves and leopards around the Dead Sea, but it is protected in places like Ein Gedi (named for

another Arabic and Aramaic term for goat) on the western side and Wadi Mujib on the eastern side of the Dead Sea.

The hyrax or coney (*wabar* in Arabic) is an interesting brownish animal about the size of a rabbit that can be seen on the precarious edges of steep cliffs of valleys throughout Palestine, feeding on plants and furtively rushing back to its den when threats such as a predatory eagle or a jackal are sighted – a peculiar danger call can be heard from the animals that hold guard on lookouts. It belongs to a unique order of mammals and is in fact closer to tapirs and elephants than to rabbits and rodents. Humans occasionally hunt these for food, so the hyrax has become very shy around humans, but it can be observed in places such as Mar Saba and the Jordan Valley or on the hillsides of Jenin.

Of the small mammals, bats are fascinating creatures. We have over two dozen species, with all but one species being insectivorous (eating insects) and the Egyptian fruit bat being the largest in Palestine. Bats locate their insect prey by ultrasound which they emanate



The forearms of bats have developed into wings, making bats the only mammals that are naturally able to fly.

through their nose or mouth and receive back via specially shaped external ears and amazing adaptations of their internal ears and brain system. Each species can have unique frequencies and prey on certain types of insects or small animals. The long-eared bat of the genus *Otonycteris*, a desert species, feeds mostly on scorpions in arid regions such as the Jordan Valley, thus competing for food with the desert hedgehog that feeds on scorpions, large insects, lizards, and animal eggs. Among the three hedgehog species in Palestine, the desert hedgehog is the most handsome.

It is possible to be cautiously optimistic that Palestinians (with the support of others) can rise to the challenge of protecting our rich fauna and flora that

constitute an integral part of our native heritage. Such efforts not only connect us to this “Holy Land,” they are critical for our human survival on this part of the planet and elsewhere.

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Article photos courtesy of PMNH.

* See Qumsiyeh and Isaac, 2012, “Research and development in the occupied Palestinian territories: Challenges and opportunities,” *Arab Studies Quarterly*.

The hedgehog hibernates in winter when it is cold and also becomes less active at the height of summer, when it gets too hot.

