

Chameleons in Gozo

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A Brief Introduction

The story of chameleons in the Maltese Islands is a story of survival and adaptation. In fact, though not a native species, the *Chamaeleo chamaeleon* or Mediterranean chameleon has adapted very well to the environment of our islands, managing to become, in less than a century, an integral part of the Maltese herpetofauna.

The Mediterranean chameleon is one of the 85 species of chameleons known in the world and is one of the only two species found in Europe. The first known person to describe the Mediterranean chameleon was Aristotle in the fourth century before Christ, yet the first one to classify it was Carl Linnaeus, the father of modern taxonomy.



As the name clearly implies, the Mediterranean chameleon's distribution revolves around the Mediterranean basin. Its presence is most strong in the North African states, though its distribution goes as far as the Arabic Peninsula and many other regions of the Middle East. In Europe, the chameleon is found in most southern Mediterranean countries: Portugal, Spain, Turkey, Greece, Cyprus, Sicily and the Maltese Islands.

Unique Features

Despite sharing a common ancestor with many other lizards, million of years of evolution has transformed the chameleon into a reptile with many unique characteristics.

As other reptiles, its whole body is covered almost homogeneously in scales, with larger plate-like scales on the face and smaller ones on the rest of the body. A row of conical scales forms a small crest on the top of the head, which is usually higher in the male than in the female.

Its body, where the adult male can reach a length of over 30 cm (including the tail), is laterally compressed, a characteristic that is common to other arboreal lizards and that helps the chameleon to hide behind branches and avoid being detected by predators.

Yet what sets the chameleon apart from the rest of the animal kingdom are some other very peculiar characteristics.

The ability to change colour

The colour-changing ability of the chameleon is well known, yet due to misconception it is still widely believed that chameleons can change the colour of their skin to match that of their surroundings. This is wrong, as the change in pigmentation of the chameleon's skin changes as a response to mood, intensity of light, stress, temperature, reproductive status and physical conditions. A scared chameleon will turn dark, almost black, while a dying chameleon will appear a pale greyish colour.

The normal colours of the Mediterranean chameleon are mostly green or brown with lighter spots on the side of the body, a colouration which is often a fairly good match with the surrounding habitat. Yet the chameleon's chromatic range includes colours that go from grey to yellow and from black to orange.

360° vision with turret eyes

The ability of the chameleon to move the eyes independently and to allow them to view at 360° is a unique characteristic of this animal in the whole animal kingdom. This ability allows the

chameleon to be able to view in any direction without moving, as well as to keep an eye on an approaching predator while at the same time move towards a safer location.



Zygodactyl feet

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Like arboreal birds such as the woodpeckers or parrots, chameleons possess zygodactyl feet which means that its feet have two opposing groups of toes which allows them to climb trees and plants as well as to walk over the open terrain. The claw-like feet are formed by two toes on the outside of each front foot and three toes on the inside part. This pattern is reversed on the rear feet.

Prehensile tail

To increase its dexterity as a climber, besides having clamping feet, the chameleon has a prehensile tail that coils around branches and stems allowing it to move with more grace and safety.

The lethal tongue

Together with the ability to change colour, the ability to catch prey by literally shooting it down with its tongue, is probably the most well known feature of the chameleon family. In fact the

chameleons have a ballistic tongue mechanism which is unique among lizards.

A hunting chameleon will slowly approach its prey or wait for it to alight on a nearby branch and after having slowly moved to the ideal position, it points both its eyes on the prey. It will then unhurriedly open its mouth and finally eject its tongue. The tongue is often twice as long as the whole body length of the animal, and the total time necessary to eject it and capture its prey is less than one-sixteenth of a second, which is faster than a blink of an eye. The chameleon's tongue, which terminates in a white sticky appendix, which up to few seconds earlier had been resting inside the U-shaped hyoid bone, is released like a spring onto the prey. The chameleon's aim is formidable; it rarely misses a target.

Arrival in Malta

The chameleons arrival in Malta is a very recent one and it can be traced to the middle of the 19th century. It is in fact believed to have been introduced to the islands by the protestant missionaries returning from Africa between 1846 and 1865. Considered a pet, the chameleon was released into the gardens of the missionary's house in St. Julians, which later, in 1877 became known as St. Ignatius College. From there the chameleon has managed to spread to almost all parts of the Maltese Archipelago, reaching most parts of Gozo and Comino and even the most remote areas in Malta.

But how did it manage to spread so vastly around the islands? The most likely possibility is that the chameleon did not move on its own but was taken to the different areas by people.

Seen as a possible pet or maybe as a kind of charm against insects, the chameleon has most likely been dispersed all over the island by farmers, children or dwellers that have found the animal by a roadside and decided to place it in their garden or field.

Nowadays Chameleons can be found in most parts of Gozo. Particularly in the areas of Xaghra, Nadur, Qala, Għajnsielem, Sannat and Xewkija. Yet although its presence has through the years spread to almost every corner of the Maltese Islands, little is known about this fascinating animal, about

its numbers or about its local habits and little or almost nothing is done to protect it from the many dangers that continuously threaten its future.



Turret Eyes

Population Estimate

It is very difficult to give the approximate number of chameleons present in Gozo. But as this is, to my knowledge, the first report of its kind for the island, an attempt will be made to give a very rough estimate.

The present author estimates that the population number lies between 400 to 1000 specimens. This is obviously a very rough estimate, yet it might be considered as a starting point for future studies, as well as a good starting point for discussion.

Dangers

Though the chameleon population has adapted very well to the Maltese Islands, and though it has in a way prospered, chameleons are still endangered by the continuous loss of habitat.

Urbanisation, commerce, displacement, excessive use of insecticides and fires, are only a few of the threats faced by the chameleon in the Maltese islands. The Maltese Islands, with one of the highest

density of human population in the world and with a rampant, as well as careless building practices, have been left with only a few areas of countryside that can be considered as such. The habitat the chameleon has adapted to in the last hundred and fifty years is slowly disappearing before our eyes.

The constant push to urbanisation, often caused by tourism, the building of new roads, the clearing of land for agricultural use and the space claimed for hunting and trapping are destroying the habitat of many species, including the chameleons. Some of them are directly killed, often unconsciously, as people are simply not aware that they are there; other specimens are pushed towards small, constricted areas, often bordering human developments.

In addition, the lack of proper designated conservation areas exacerbates the situation. Nowadays, for most people, it is more common to see a dead chameleon splattered on the road by a passing car, than a living specimen basking in the sun waiting for a cicada to stop nearby. In fact cars are one of the biggest threats to the local chameleon population. Though they have the ability to move their eyes independently, and so can see oncoming traffic, the chameleons are very slow moving animals. When a car is approaching they are more likely to freeze, or maybe puff then to run away. The consequence is often death. If they were as fast as lizards, they would probably stand a chance. The reality is that chameleons were engineered to live in trees, to move around branches and not to run on paved roads.

But though cars are probably the most evident of all dangers, there is something that is even more threatening: fire. Fires set to clear the land from shrubs and bushes do even more damage than cars, unknowingly killing many chameleons every year. Fires in fact, do not only kill the single specimen, but kill the whole group of chameleons in the area, destroying their habitat and any eggs which had been laid, hidden beneath a thin layer of soil.

The other silent killers are the pesticides. Spraying and often over-spraying of fields with pesticides is a common practice in Maltese agriculture. These pesticides which are supposed to kill the pests that ruin harvests, often kill much more than they intend to, and chameleons are directly or indirectly one of their victims.



Chameleon blending into the rocks

Legal Protection and Conservation

The Environment Protection Act and the Reptiles (Protection) Regulations of 1992, lists the *Chamaeleo chamaeleo* as one of the species to protect.

Handling a chameleon for reasons that are not purely scientific is in fact illegal. To keep it as a pet, to sell it, to export it or to kill it is illegal, yet little is known about these directives. School children, farmers and nature enthusiasts that encounter a chameleon will often handle it and displace it to other areas of the island (or possibly to their garden).

In Andalucia in Spain, twenty-seven areas have been designated to protect the species. Six in the area of Malaga, eleven in Cadiz and ten in Huelva. In Greece the chameleon is protected and included in the “rare” species of threatened species.

In Malta too, the chameleon is protected. Yet, despite the Environment Protection Act, little is done to really protect this animal.

Maltese Bibliography

After being featured in the *Times of Malta* (17th February 1975) in a full page article penned by C. Savona Ventura (NHSM), the chameleon

made its way into other Maltese books including, *Discovering Nature in the Maltese Islands*, written by Alfred E. Baldacchino, Edwin Lanfranco and Patrick Schembri (1990), *Flora u Fawna ta' Malta*, edited by Joe Sultana and Victor Falzon (1995) and *Wildlife of the Maltese Islands*, same authors (1996). This last publication is probably the most comprehensive list of the Maltese wildlife to date. In April 2004, the chameleon was also featured in the Maltapost stamps portraying mammals and reptiles of the Maltese Islands.

Federico Chini, an Italian national living in Gozo, has a special interest in Nature and Environment protection. In 2006/2007 he followed the “Environmental Planning and Management” Course held at the University of Malta (Gozo Campus).