**Can Egyptian Turtles Survive Extinction?**

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Nations usually take pride in their historical monuments imprinting them on souvenirs and commemorative medals, and seeing the sea turtle used as Cyprus Island hallmark, with which Egypt shares the Mediterranean basin, raises the question whether the Egyptian turtle receives the same attention and appreciation?

The International Union for Conservation of Nature (IUCN) classifies the Egyptian tortoise as an endangered species, and it is on the Red List of creatures most vulnerable to this threat; The urban development, overgrazing and poaching for pet trade purposes led to endangering it, especially the hunting operations that took place in the eighties and early nineties.

According to World Wildlife Fund (WWF) and IUCN website, the Egyptian tortoise is known by the scientific name (Testudo kleinmanni), its native habitat is in Egypt, Libya and Palestine; in Egypt, its habitat starts from North Sinai and along the northern coast to Salloum. The tortoise’s natural diet varies from its dependence on salt and sea lavender, while others feed on plants with broad leaves and its flowers, and herbs.

**Hunting Sea Turtles**

Many studies monitored the hunting of sea turtles, one of the studies noted that they are captured under the claim that their blood helps improving male sexual performance. According to this study, sea turtles lay their eggs in holes they dig on shore away from the sea line, the holes’ width varies between 40 to 50 cm, each turtle lays between 100 to 250 eggs according to the species, and once the eggs hatch the hatchlings instinctively head to the sea.

According to a study by Dr. Omar Al-Otaim, Associate Professor of Biology at Indiana University, on turtle habitats in Egypt, Lake Bardawil is the main feeding area for turtles in the southern Mediterranean, and one of the main risks threatening sea turtles is fishermen’s nets, as turtles are regularly drowned or deliberately killed by fishermen as they destroy their nets and consequently the fish escape.

“*Female sea turtles do not reproduce every year, but rather every three years; the deterioration of their marine habitats reduces food availability, also the reduction in coral areas negatively affects Green and Hawksbill Sea turtles. Usually, the turtles’ nesting areas are the beaches where people love to visit*”, Said De. Al-Otaim.

Then Dr. Al-Otaim added, “*our research shows that sea turtles do not follow a specific route for their migration, meaning that the whole Red Sea is important; Green Sea Turtles travel all over the Red Sea to visit their mating areas which are close to their nesting destinations, such as Zabargad Island. After mating and laying eggs, turtles move to various feeding areas spread all over the Red Sea, for example, turtles that lay their eggs in Egypt migrate to Saudi Arabia and Eritrea*”.

Al-Otaim mentions natural elements helped in further endangering sea turtles, “*female Green Sea turtles take at least 20-40 years to reach their sexual maturity, and it is rather a difficult mission for any animal to survive amongst a human world full of hunting nets and pollution, let alone an ocean full of plastic wastes*”.

**The Law**

Article 28 of Environment Law No. 4 of 1994 prohibits hunting or killing wild animals and marine organisms, or possessing, exporting, importing or trading in them, whether they are alive or dead, also prohibits carrying out acts that would destroy their natural habitats, change their natural properties, or damage their nests or destroying their eggs or harming their offspring.

Those who violate the provisions of Article 28 shall face imprisonment and a fine of no less than five thousand EGP and not more than fifty thousand EGP, or one of these two penalties. The captured animals and hunting equipment will be confiscated, and in the event of repeating such offense, the penalty can be up to 3 years in prison and a fine of 5,000 to 50,000 EGP.

The Egyptian Dar al-Ifta (Islamic advisory) issued an official Fatwa prohibiting turtling and considering drinking their blood as an abominable act, and torturing and harming turtles by cutting their tails and draining their blood is a major sin.

**Turtle Myths**

The American Sea turtle organization monitored in a study the uses of sea turtles and traditional beliefs in West Africa, including its uses in folk medicine or in sorcery practices. Oils extracted from the skin of turtles, either pure or mixed with honey, are used to treat convulsions, malaria, fever and fainting spells. Turtle fat is used in treating bruises, sprains and fractures, mouth ulcers and joints massaging as well. The Green Turtle's front flipper claw is used in magic and facilitating harvesting of farmlands, it is also tied in children's feet so they learn to walk more quickly.

A study issued by the Faculty of Agriculture at Alexandria University monitored the eating habits associated with the consumption of turtles, whether through eating their meat or drinking their blood.

Linking between enhancing male sexual performance and drinking turtle blood is not only confined to Egyptian popular culture, but is also present in Japan and was monitored by press reports and blogs. Upon looking for a research study that clarifies the truth behind these beliefs, there was nothing to be found, and the majority of published studies criticize this behavior for its negative impact on biodiversity.

**The Importance of Turtles**

Sea Turtles are an essential part in the marine ecosystems; they help on preserving seaweed and corals that in turn benefit commercially valuable marine species such as shrimp, crab, and tuna.

Tortoises also play an important and underappreciated role in terrestrial and marine ecosystems, with natural roles including seed dispersal, mineral recycling and carbon storage. However, tortoise populations have experienced a sharp decline in the recent years, and surprisingly, according to the study published in the Science Direct journal, areas high with tortoise populations do not necessarily need efforts to conserve its biodiversity.

**The Story of The Bahaa’ Al-Din’s**

Dr. Sherif Bahaa’ Al-Din is one of the most prominent naturalists and founder of the Nature Conservation Egypt (NEC), and one of the most interested in saving turtles in Egypt. He was accompanied on his journey of interest by his late wife, Dr. Mindy Bahaa’ Al-Din; the couple participated in saving hundreds of turtles and the husband still takes care of some of them in his private farm.

“*I conducted a field survey overall of Egypt in 1994, and founded that turtle habitats had been destroyed or that large parts of them had disappeared, and since then I have found only simple or limited moves to address the problem*", said Dr. Bahaa’ Al-Din.

In 1997, while Dr. Sherif Bahaa’ Al-Din was working as a scientific advisor to the Zaranik Protectorate in North Sinai, a group of smuggled tortoises were seized and put under his care. “*I was told that if they were taken to the zoo they would die and this was a turning point for me; they were about 400 tortoise*s", said Dr. Bahaa’ Al-Din who added that in order to provide these animals with the necessary care, he contacted several international bodies, including the London Zoo, to obtain assistance not only a financial one, but also medical and technical; as some of them were sick and required medical attention that lasted for years, then the tortoises began to lay eggs and reproduce. Those are still under his care; they are very sensitive creatures and are called Indicators Factors as they are the first beings affected by the slightest changes in their natural environment.

**Reasons Why Tortoises are Extinct**

Dr. Sherif Bahaa’ Al-Din explained that the loss of the natural environment is what threatens tortoises mostly and there are different causes behind this. In the early nineties, the cultivation of barley was destroying their natural habitats as a result of plowing the land using tractors that spread in large areas without separators, sweeping away evergreen plants, which if removed would never grow again; It is the habitat of tortoises that live under it and of course move from one place to another slowly to obtain food and water. Once this environment is removed and changed, tortoises disappear immediately for not being able to adapt or move from one place to another easily, and they usually die due to the heat and sun and their inability to adapt.

Dr. Sherif Bahaa’ Al-Din commented on the attempts to return tortoises to their native habitat saying that the results were unpromising, the creatures couldn’t adapt and died after a short time although they were healthy; their habitat has changed drastically, and by monitoring lands that were farmed even for once they found that tortoises disappeared from there completely being the sensitive creatures as they are.

Architectural development also affected the habitats of tortoises in the north coast, not only through the construction of tourist villages, but also in using sand as one of the raw materials used in construction; hence the change in their natural environment.

Added to the aforementioned reasons, the smuggling and poaching that took place in the seventies, reaching the eighties their numbers dwindled then they disappeared. Tortoises barely exist now. Besides overgrazing and chopping trees for firewood; Which in turn reduces the quality of life, as a result of a type of desertification and the lack of vegetative cover, and with the element of movement and its limitations, tortoises’ ability to adapt lessens.

**Current Tortoises Market**

Taking a tour in the Friday market in Cairo, the most famous place for selling tortoises, it was hard to find any due to the continuous police arrests. Usually, tortoises are available more in summer, you can buy them also from pet stores but you need to submit a prior request and pay half its price. You can buy tortoises also on social media websites and on OLX website. The price of a wild tortoise varies from 200 to 600 EGP, or 17 to 40 USD.

Sea Turtles are also available on social media and popular markets in Alexandria and coastal cities, their prices vary from 400 to 1000 EGP, or 30 to 70 USD.

Dr. Bahaa’ Al-Din clarified that the source of tortoises now is what can be poached and smuggled over the borders from Libya, stressing that tortoises do not face the risk of extinction in Libya as their natural habitat did not change. However, the animals brought are usually sick, there is a virus spread among them resembling the Corona virus as it hits the respiratory system. Tortoises’ lungs are very sensitive and this sickness may last for years leading to dehydration and then death, especially in summer. Then he added that all these poaching, smuggling, and trading processes are illegal as per CITES Convention for the Protection of Animals from the Threat of Extinction and Egypt is a signatory to it.

Dr. Mohamed Ismail, the Wildlife Officer at the Environmental Affairs Agency, said that the wildlife team follows up on what is published on social media, in addition to the complaints received by the Cabinet online portal, and in the event of a report of possessing or trafficking tortoises or sea turtles; as it is illegal to own or trade in them according to the Egyptian Environmental Law and the International CITES Convention. Ismail explained that the report is dealt with according to its status, as some reports are dealt with directly through the wildlife team, while others need the support of the environment police and water bodies. A report is made of the incident and the turtles are confiscated, then rehabilitated and returned to their natural habitats to preserve biodiversity in their natural environments.

Hayah Organization for the Protection of Wild and Marine Organisms is an environmental association active in Libya, and in an interview with Dr. Murad Bujalil, Head of the Scientific Committee of the organization, he said that poaching and smuggling tortoises from Libya to Egypt for the purpose of illegal trafficking is popular, pointing out that the organization recorded huge numbers of tortoises smuggled annually, and is now working with partners in Egypt to stop this.

**Releasing Tortoises**

Dr. Sherif Bahaa’ Al-Din explained that he participated in conducting a study on the possibility of releasing tortoises in places that could serve as an environment they can live in. He found that the natural environment itself has changed and they have not been able to adapt, it requires awareness and preparation of the local community to understand the nature of tortoises; noting that in the native habitats of tortoises, the majority of its inhabitants are poachers.

Dr. Bahaa’ then talked about the attempt to re-inhabit tortoises in their native habitat in Al-Amid Protectorate that ended up in their death despite being in perfect health, this was due to their inability to adapt, especially as their presence is connected to other kinds of natural evergreen plants.

Regarding the efforts exerted by the Ministry of Environment, Dr. Mohamed Ismail, Wildlife Officer at the Environmental Affairs Agency, said that in the recent years, large numbers of wild tortoises, which were confiscated by the police, have been released in Al-Amid Protectorate. Al-Amid and Salloum Protectorates have the largest numbers of Egyptian tortoises. Also, all National Parks of the Red Sea, the Mediterranean and the Gulf of Aqaba include sea turtles.

Ismail confirmed that monitoring the protectorates is conducted through daily land and sea patrols to follow up the situation there and apprehend violators, adding that in the event of confiscation and seizure, the penalty is imprisonment or a fine, and in case a poacher handed over the tortoise stolen, a pledge is taken not to repeat this violation. A penalty is set in the case of hunting in National Parks as a fine paid or even imprisonment or confiscation of the hunted animals, and punishment is all the same whether it was a tortoise or a sea turtle.

He clarified that the provisions of Law 4 of 1994 are applied in cases of confiscation and seizure, stressing that there are no permits from the Ministry of Environment to sell or display tortoises and sea turtles, as it is prohibited to trade, sell, display and trade them according to the Egyptian Environmental Law. In addition, any complaint about the online sales of turtles is transferred to the Environmental Police and Water Bodies to take the necessary measures.

**Reasons Behind Smuggling Increase**

On why hunting tortoises or smuggling them has increased, Dr. Murad Bujalil has clarified that in the recent years and with the deterioration in economy, poaching has increased through scanning the places where tortoises dwell, especially in spring; their mating and feeding season. There are two hibernation periods for tortoises, in winter and through high temperatures in summer.

**Rescue Through Buying**

Concerning those who love tortoises to the extent they buy and return them to their native habitats, Dr. Sherif Bahaa’ Al-Din says this behavior provides those people with self-satisfaction, especially with the absence of any effective alternatives. Indicating that most of the tortoises are subjected to torture during the trading processes which end up in their death, and probably releasing them in their natural habitat is not always the correct thing to do; the animals may be sick or the environment is no longer appropriate for them, so they will die and buying and releasing them is of no use. Releasing tortoises back to their habitats should be done according to a specific scientific approach as aforementioned.

Abdulrahman Al-Mikkawy, member of Turtle Rescue Team, refuses to buy them; it nourishes the trade and is useless, the thing that he tried to explain to other teams interested in protecting tortoises. Also, as buying encourages this trade, the animals may be sick or put in the wrong environment, moreover, this behavior helped in raising the tortoises’ prices.

Mai Hamada, Founder of Turtles Lovers Association in Alexandria, another team of volunteers rescuing turtles, said that the work is done through self-efforts without external funding, and sometimes she has to buy tortoises in order to save them; the thing she describes as wrong behavior and encourages this trade and raises the price of turtles. She raises awareness and reports to the competent authorities, and in case there was no response, she intervenes in order to achieve the most important goal for her, which is saving tortoises. Time is vital, as moving fast to save the turtle can save it from being slaughtered.

In other cases, such as fish restaurants, they display sea turtles as a form of decoration, and Mai Hamada says she receives positive response when she speaks to them raising the awareness of the importance of the presence of sea turtles in their natural environment.

**The Love of Owning Pets**

 Dr. Sherif Bahaa’ Al-Din does not object to owning wild animals and providing them with a suitable environment, especially as his love and interest in wild animals started when he was just a child taking care of a tortoise, then he owned when he grew up multiple reptiles and wild animals for scientific research purposes. Dr. Bahaa’ added that now, with social media websites, it is easy to find information about the right methods to raise animals and help them live in healthy environments for a long time, stressing on the importance of heeding to laws related to endangered species.

 Murad Bujalil refuses raising turtles at home as they play a vital role in the biodiversity and also in the food chain.

**Volunteering**

Abdulrahman Al-Mikkawy, Professor at the Faculty of Dentistry at Sinai University and a member of Turtle Rescue Team, which is a group of volunteers. He pointed out that when a tortoise set for sale is seized, the team starts raising awareness, which is a method that has a positive effect at times. In case of failure, they submit reports to the Ministry of Environment.

Mai Hamada says that their team started in 2014 and rescued 109 sea turtles and returned them back to the sea in many governorates, not just Alexandria. The team also held awareness campaigns on social media and schools.

**Suggested Solutions**

NOAA Fisheries is a US federal agency concerned with protecting resources, promoting sustainability, and preventing overfishing and species endangering. On its website, it has provided a set of tips for fishermen and sailors to conserve and protect sea turtles from the threat of extinction, including not tampering with turtle nests, reducing the use of plastic, and staying at least 50 yards away to avoid hitting turtles if seen, also change the fishing location if there are sea turtles in the nets and avoid using the hook in fishing so as not to hurt them.

Australian Ministry of Environment has set a plan to face the risk of turtles’ extinction, one of the main elements is to improve their natural habitats, protect them, organize and monitor fishing, and help reducing polluting waters with plastic wastes, in addition organizing awareness campaigns clarifying the value and importance of preserving the biodiversity.

Dr. Sherif Bahaa’ Al-Din sees that the solution lies in emphasizing the prohibition of smuggling and criminalizing tortoises’ trafficking and trading, as happens in European countries, noting that annually thousands are smuggled into Egypt suffering ill treatment that endangers their lives, in addition the expansion of protectorates can help, although it is something that takes time and effort.

Dr. Mohamed Ismail, the Wildlife Officer at the Environmental Affairs Agency, clarified that the ministry’s efforts in fighting poaching includes both terrestrial and sea animals; this to help preserving biodiversity as possible and prevent ecological imbalance.

He said that the recent increase in raising environmental awareness is positive and needs more effort, it is possible to form programs to help tortoises reproduce and release them in their natural habitats to increase their numbers especially in the wilderness.

Abdulrahman Al-Mikkawy, member of Turtle Rescue Team, believes the solution lies in activating the application of the law, pointing out that laws exist and powerful, but its application is only lacking.

Mai Hamada, Founder of Turtles Lovers Association, calls for strictly monitoring poachers preventing them from reaching markets, pointing that people are already aware yet hunters need to be stopped.