

## Foreword

The remains of ancient Mediterranean civilizations inspire one: massive pyramids, the curious sphinx, temples and amphitheatres from bygone times are only a few examples of the area's historical importance and cultural greatness. Yet, what we can observe, and understand, today is but a fraction of what once was. Hence, it is with some sense of both loss and urgency that there is global concern to conserve what remains of these extraordinary cultures.

But, even these ancient civilizations pale beside other spectacles that have graced Mediterranean shores, even before Man existed. Among these truly ancient wonders, the marine turtles stand out for many reasons: they predate the dinosaurs; a turtle takes decades to reach maturity and lives for perhaps as much as a century; they often disperse across ocean basins; and they have incredibly complex life histories, with many unique features. Marine turtles are central to many cultures around the world, and have figured in international commerce for millennia, particularly in trade involving Mediterranean cultures. These charismatic marine reptiles are classical »flagship species« – animals that inspire people from all walks of life, icons that can be used to motivate the general public and decision makers alike to work and cooperate toward resolving complex issues that affect us all.

The marine turtles of the Mediterranean Basin are singular in several respects. Relatively few species are recorded, and only two are known to breed. The numbers of turtles, the »populations«, are remarkably small, and one of these – the Mediterranean Green Turtle – is regarded as critically endangered. This species is found around the world, but the Mediterranean population is distinct in being so seriously threatened. Major problems and threats to marine turtles in the Mediterranean have been known for decades, and include virtually every tribulation that is known to these marine reptiles anywhere: loss and destruction of nesting habitat, intense disturbance from fishing activities, pollution (of diverse types), non-human predation, and even directed take. Yet, perhaps the most intractable dilemma is the old, nagging problem about lack of effective cooperation, be it local, national or international.

The workshop that was held in Cairo from 13 to 16 November, 2000, was the seed from which blossomed this special issue of *Zoology in the Middle East*. A marvellous spirit of brotherhood and cooperation was generated in the meeting room of the British Council, where four days of interesting presentations and highly fruitful discussions were held.

The individual studies presented include various biological details about nesting ecology. We learn from the available data that 5 beaches have more than three quarters of all known Green Turtle nesting in the entire Mediterranean, and one beach alone has 42%. The maximum estimate for the total number of females nesting in a year is less than 600. Most beaches have no official protective status, and there are many unknowns in the basic biology.

The other species that nests in the Mediterranean, the Loggerhead Turtle, is more numerous, but certainly not without serious problems. Relatively few nesting attempts are successful, meaning that a female needs to return repeatedly to the beach just to lay one clutch. Even then, clutch sizes are relatively small, hatching success is low, and predation rates can be very high, affecting more than 50% of nests. There are also a number of invertebrates that feed on nest contents, but it is not clear if they are a significant cause of mortality, or rather functioning as scavengers, and actually »helping« the turtles by »cleaning« organic matter on the beach.

Albino hatchlings have been documented at several beaches; and there is considerable variation in carapace scutes in Loggerheads. Although physical abnormalities such as these can arise from problems during incubation, albinos are not common in either Green or Loggerhead Turtles, and there is no indication that these curiosities are »out of hand.« Nonetheless, most nesting beaches have tremendous human pressures from diverse factors, including construction, debris, industrial and other forms of pollution, and intense (illegal) trawling.

We are gaining a better understanding of the marine phases – where marine turtles spend the vast majority of their lives, but where it is much more difficult, dangerous and expensive to work. Gradually, systematic information is beginning to accumulate on strandings, movements (dispersions and migrations) and sources of mortality in marine environments. Areas which are not generally thought of as important to marine turtles, for they are hundreds or thousands of km from nesting areas, are turning out to be critical foraging areas, at least during part of the life cycle.

Not all lines of research which bear on the question of marine distribution were originally directed at this question. Concentrations of heavy metals in body tissues, while not remarkably high, vary between nesting beaches, and indicate that different groups of females are exposed to varying concentrations of heavy metals. But the details of these population differences are still to be worked out.

Rates of incidental capture in fishing operations can be very high, as off the coast of Turkey, and although indications are that the majority of turtles are landed live, repeated captures of the same individuals can cause sufficient physiological stress to kill turtles, and damage to certain bottom types can decimate critical habitats for other species. In many cases, fishermen do not have any use for turtles, and in fact in some societies in the Mediterranean it is a bad omen to disturb these animals. However, one exception which has received considerable notoriety comes from Alexandria. Here, the consumption of turtle meat – and also blood – drives a demand for turtles, promoting »incidental« capture even though it is illegal.

Throughout the region, there are many illegal activities that occur – both on land and at sea – with little control or sanction; this is even true within protected areas. Many such problems have been known for at least a decade, but little has been done to resolve them.

With few exceptions, nesting density in the eastern Mediterranean is extremely low, and nearly always coupled with heavy pressure on beaches and in offshore areas. Because the population sizes are so small, each individual breeder has a relatively very high value to the future of the population.

But, all is not lost! There are numerous organizations, non-governmental, national, and inter-governmental, linking the 20 sovereign states (as well as the European Commission) that make up the Mediterranean basin. The regional action plan for marine turtle conservation in the Mediterranean has not only been accepted, but also revised and printed. Moreover, there are very active non-governmental organisations e.g. in Cyprus, Egypt, Greece, Italy, Spain, and Turkey. Several regional resources, in published as well as electronic form, and also meetings, are fundamental in not only providing information, but also in linking people, institutions, and programmes to advance conservation and recovery goals. Amazingly, after millennia of human habitation on the shores of the Mediterranean, including some of the world's most renowned ancient cultures, there are still some very profound gaps in basic knowledge about the marine turtles that have been sharing these waters with people for so long.

Nonetheless, a major challenge, quite aside from understanding what is happening in terms of biology and major threats, is accomplishing cooperation, not only between countries at distant ends of the Mediterranean, but between neighbours, and even between countrymen. The workshop in Cairo, from which this publication emerged, and this publication itself, will be invaluable in resolving these issues.