

CONSERVATION OF MEDITERRANEAN AMPHIBIANS AND REPTILES, AND THEIR HABITATS

*M. R. K. LAMBERT

*British Herpetological Society, c/o Zoological Society of London,
Regent's Park, London NW1 4RY*

There are 18 Mediterranean coastal States, which in alphabetical order are:—
Albania, Algeria, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libyan Arab
Republic, Malta, Monaco, Morocco, Spain, Syrian Arab Republic, Tunisia, Turkey and
Yugoslavia.

Background

In accordance with resolution 2997 (XXVII) of the United Nations General Assembly, the United Nations Environment Programme (UNEP), based in Nairobi, was established "as a focal point for environmental action and co-ordination within the United Nations system". The UNEP Governing Council defined this environmental action as encompassing a comprehensive, transectoral approach to environmental problems which deal not only with the consequences, but also with the causes of environmental degradation. 'Oceans' have been designated as a priority area and a Regional Seas Programme has been adopted.

There are at present ten Seas where action plans are operative or under development and the Mediterranean is the first region in which UNEP has attempted to assist the coastal States to adopt and apply measures for the protection and development of the marine and coastal environment.

The Mediterranean Sea

In collaboration with several United Nations bodies, UNEP convened as Intergovernmental Meeting on the Protection of the Mediterranean in Barcelona, 28 January — 4 February 1975. Sixteen of the 18 coastal States attended the meeting and an Action Plan was approved. One year later at the Conference of the Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea, convened by UNEP in Barcelona, 2 — 16 February 1976, the Mediterranean Governments and EEC approved the texts of three legal instruments:—

- i) Convention for the Protection of the Mediterranean Sea against Pollution,
- ii) Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, and
- iii) Protocol concerning Co-operation in Combatting Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency.

These came into force on 12 February 1978 and had been ratified by the end of June 1980 by 15 Mediterranean States and the EEC.

In January 1977, a consultation of experts was convened in Tunis to discuss problems related to the management of areas requiring special protection, and recommended that:—

- i) Mediterranean protected areas, in particular the aquatic parks, reserves and wetlands, should be organised into an Association of Protected Mediterranean areas, one member acting as the co-ordinator.
- ii) Regular, periodic meetings should be organised for representatives of Mediterranean protected areas to exchange views on their experience and problems.
- iii) Research on ecological problems of protected areas should be intensified and should be related to the ongoing UNEP co-ordinated Mediterranean Pollution Monitoring and Research Programme.

* *Present address: Centre for Overseas Pest Research, Foreign & Commonwealth Office (Overseas Development Administration), College House, Wrights Lane, London W8 5SJ.*

iv) An intergovernmental meeting should be convened to consider and adopt guidelines and technical principles for the establishment and management of Mediterranean protected areas. The report of the Tunis Expert Consultation should be used in the preparatory work of the recommended intergovernmental meeting.

v) A directory of Mediterranean protected areas should be prepared and kept under constant review.

Activities in support of the protection and rational management of marine parks, wetlands and other protected areas were adopted at the first meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols in Geneva, 5 – 10 February 1979. UNEP, among other things, was requested, “..... in co-operation with UNESCO, FAO and IUCN, (to) convene an intergovernmental meeting to consider, with a view to adoption, guidelines and technical principles for the selection, establishment and management of Mediterranean specially protected areas and other related matters. The meeting should also consider the development of a protocol concerning Mediterranean protected areas.”

The Athens Conference, October 1980

An Intergovernmental Meeting on Mediterranean Specially Protected Areas was organised by UNEP, in co-operation with the other UN Agencies, at Athens, 13 – 17 October 1980. The preceding paragraphs above are extracted from the Foreword to the ‘Principles, Criteria and Guidelines for the Selection, Establishment and Management of Mediterranean Marine and Coastal Protected Areas’, prepared by IUCN for the meeting. More recently, a new draft of this paper was accepted at a further meeting of the 18 Mediterranean Coastal States on an Action Plan at Cannes, 2 – 7 March 1981.

The Mediterranean Habitat

The Mediterranean Sea is nearly enclosed and has coasts which have been populated for thousands of years and which have been largely cleared and deforested. They are now the subject of touristic development without precedent, industrialisation and urban development, and as a consequence the sea is polluted. One could describe the Mediterranean as being a ‘sick sea’ and the natural environment which it contains is being destroyed rapidly. The quality of life for the coastal inhabitants and that of millions of tourists (200 million yearly at present is likely to be 400 million by the end of the 20th century) who frequent the beaches is bound to be affected. Besides the objectives of the World Conservation Strategy (IUCN, UNEP and World Wildlife Fund 1980, Gland and Nairobi, in collaboration with FAO and UNESCO), a network of marine and coastal protected areas should be created within the framework of a concerted effort on the part of the Mediterranean Coastal States. Before this can be undertaken, the natural habitats of the Mediterranean and the species they contain must be established in order that they can be protected by the establishment of reserves. Moreover, the influence of the various pesticides and insecticides used in agriculture on Mediterranean amphibians and reptiles generally is little understood. (Applied research is also required for a better understanding of the obvious decline of some insectivorous lizard species).

Problems concerning the herpetofauna

Marine turtles

There are seven species of marine turtles in the World and all, except one, are threatened by over-exploitation and destruction of their coastal breeding sites. Three species are known to lay their eggs on Mediterranean coasts. *Dermochelys coriacea* has bred in Sicily, *Chelonia mydas* on the southern Turkish coast and *Caretta caretta* on some beaches on the Greek islands, and in Italy and Turkey. *Eretmochelys imbricata* and *Lepidochelys kempfi* have been recorded in the sea.

Coastal land species

Species of amphibians and reptiles occur within marshy coastal areas, dunes and rocky cliffs, and several endemic species on some of the isolated Mediterranean islands. The

Mediterranean herpetofauna is more diverse than in northern Europe and several are restricted there. Although some information is available on the status of species in the northern part of the Mediterranean Basin, there is very little for parts of North Africa and the Near East. Species are threatened by the abuse of collection, water pollution, pesticide usage and habitat destruction. The protection of certain coastal regions would contribute significantly to their conservation, since they have poor powers of dispersal and are limited by their habitat. The threatened species fall into two groups.

i) **Island species:** numerous forms of lizards isolated on Mediterranean islands or islets have evolved separately and become separate sub-species. Many are now threatened by excessive collection by private collectors or dealers and by the destruction of their habitat. Introduced predators, such as rats, have equally contributed to their decline. Such lizards occur in Malta, where *Podarcis filfolensis filfolensis* exists on Filfera I., in the Balearics with *Podarcis lilfordi lilfordi* on the island of Ayre and *Podarcis lilfordi rodriguezi* on Ratas Island in the Bay of Mahon in Menorca. In the Tuscan Archipelago, with *Podarcis muralis muellerlorenzi* on Scuola and *Podarcis sicula cerbolensis* on Cerboli near Elba, *Podarcis sicula caerulea* is found on the rocks of Faraglione near Capri. *Podarcis sicula sanctistephani* is now extinct on San Stephano in the Tyrrhenian Sea. Others still exist on islands in the Aegean Sea and the Adriatic, and on the Balearics. All are threatened with extinction to some extent through only occurring in very small numbers. These examples of the continuing evolutionary process will disappear.

The Filfera Island lizard and other species are listed either in the IUCN Red Data Book Vol.III – Amphibia & Reptilia, or on the list of threatened amphibians and reptiles in Europe established by the Council of Europe.

Of the snakes also listed is the Cyclades viper, *Vipera lebetina schweizeri*, whose total population does not exceed 5000.

Discoglossus sardus, the painted frog only found on Corsica, Sardinia, and on the island of Monte Cristo and on the Iles d'Hyeres off France, is also listed.

ii) **Coastal species:** Land and inland water species within the coastal proximity include terrestrial and fresh-water chelonians, lizards, snakes and Amphibia. Their habitats are not necessarily limited to coastal regions, but where they are, their survival would be enhanced in protected areas and it is useful to give mention of some of the species concerned.

Chelonians.

Emys orbicularis has declined in Europe on account of habitat destruction, water pollution, and collection, but it still survives in the coastal zones of Tuscany (Italy), Spain and France. It also occurs in the Balkans and the Near East. *Trionyx euphraticus* occurs in eastern Turkey and as far as the Mediterranean coast in the Syrian Arab Republic and Lebanon. All of the land tortoises, normally frequenting the coastal strips, are threatened by trade collection and habitat destruction. There are various forms of *Testudo graeca* in southern Spain, the Balkans, North Africa and the Near East, and of *Testudo hermanni* in the Balkans, the Midi of France, Italy, Corsica and Sardinia, which are more often than not the victims of fires in forests and scrubland. *Testudo marginata* is restricted to southern Greece and Sardinia, and *Testudo kleinmanni* to the Sinai Peninsula and north-east Africa, very little being known about the latter species.

Snakes and lizards.

Among the threatened Mediterranean lizards which would benefit from the establishment of protected areas, because their habitats extend to the vicinity of the coast, are the Sardinian lizard, *Lacerta bedriagae ferreriae*, two quite large and spectacular southern European and North African species, *Lacerta lepida pater* and *Lacerta viridis*, which are disappearing on account of habitat destruction, collection and, perhaps less importantly, their excessive use in the production of parasitic antidotes, and *Chameleo chameleo* in the south of Spain, Crete, North Africa and the Near East. In Spain, this last species is only represented by two isolated and declining populations which still survive in the coastal pinewoods of the Provinces of Cadiz and Malaga.

Several threatened or vulnerable snake species would also benefit from the creation of protected coastal areas. *Coluber hippocrepis* of north-west Africa, the Iberian Peninsula, Sardinia and the island of Pantelleria, generally lives in marshy areas which are becoming rarer, *Natrix natrix cetti*, the Sardinian hill snake, is threatened by the drainage of marshes and the spread of insecticides, *Coluber monspessulanus*, whose distribution extends from North Africa, through the Iberian Peninsula and the Midi of France to the Balkans, is often found on coastal marshes and sand dune belts, a blind burrowing snake of the Family Typhlopidae, only represented in Europe by *Typhlops vermicularis*, occurs in the Balkans, certain Greek islands, south-west Asia and Egypt, and is often seen in the neighbourhood of the sand boa, *Eryx jaculus*, with a similar distribution and also extending into North Africa.

Amphibians

Many Amphibia breed in the wet coastal zones and are threatened by drainage of their habitat and pesticide usage. *Bufo calamita* frequents dunes often near the sea and can reproduce in brackish water, several *Pelobates* spp. occur in the Mediterranean region and are sometimes common still in sandy coastal regions, and the tree frogs, *Hyla arborea* and *H. meridionalis*, the latter restricted to the Midi of France, the south of the Iberian Peninsula, the Balearics and north-west Africa, together with several other species of frogs, salamanders and newts, are restricted to Mediterranean coastal regions. *Discoglossus nigriventer* may nearly be extinct in Israel.

There also exist underwater caves in the Karst limestone formation of the north-west Adriatic coast, near Trieste and Istria. Surviving underground in the waters is a remarkable species, *Proteus anguinus*. It is the sole representative in Europe of the Family Proteidae, which includes four other species in the eastern USA. The tadpoles do not metamorphose and the species breeds neotenuously. It is threatened by the pollution of its underground streams and by collection for scientific and other reasons.

Conclusions

This somewhat scanty survey highlights the problems concerning the conservation of Mediterranean species of amphibians and reptiles. Since the information available is mainly for species in southern Europe, especially for France, Spain and Italy, there is a tendency for this account to have concentrated on the plight of these species. There is very little information to date for most of North Africa and the Near East. In particular, information is required for Albania, Algeria, Cyprus, Egypt, Greece, Lebanon, Libyan Arab Republic, Malta, Monaco, Syrian Arab Republic, Tunisia, Turkey and Yugoslavia.

APPENDIX

A Preliminary List of Amphibians and Reptiles of the Mediterranean Region known or considered to be threatened

(compiled by R. E. Honegger,
former Editor, IUCN Red Data Book, Vol. III, Amphibia & Reptilia)

Species threatened throughout their range:—

Salamandrina terdigitata, *Mertensiella luschani*, *Proteus anguinus*,
Discoglossus nigriventer, *Alytes obstetricans boscai*, *Pelobates fuscus insubricus*,
Pelobates syriacus, *Testudo hermanni hermanni*, *Testudo hermanni robertmertensi*,
Testudo marginata, *Testudo graeca graeca*, *Caretta caretta*, *Chelonia mydas mydas*,
Eretmochelys imbricata, *Lepidochelys kempi*, *Dermochelys coriacea*,
Podarcis filfolensis filfolensis, *Podarcis lilfordi lilfordi*, *Podarcis lilfordi rodriguezi*,
Podarcis muralis muellerlorenzi, *Podarcis sicula coerulea*, *Podarcis sicula sanctistephani*,
Natrix natrix cetti, *Vipera lebetina schweiseri*, *Vipera ursinii*.

Species threatened within the Mediterranean part of their range:—

Rana esculenta-lessonae complex, *Mauremys caspica leprosa*, *Mauremys caspica rivulata*, *Emys orbicularis*, *Testudo graeca ibera*, *Trionyx euphraticus*,
Chamaeleo chamaeleon, *Lacerta lepida pater*, *Coluber hippocrepis*, *Coronella austriaca*.

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