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# REPTILES ON THE ISLAND OF SOCOTRA, REPUBLIC OF YEMEN

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## INTRODUCTION

Socotra lies about 350km south of the coast of Yemen and 200km east of the Eastern Horn of Africa. It is the largest island (approx. 125km from east to west and 40km from north to south) in a small archipelago which includes a pair of very small islands known as 'The Brothers' to the south-west and the somewhat larger island of Abd-el Kuri, situated about midway between Socotra and the Somali mainland. The archipelago is under the administration of the recently formed Republic of Yemen.

Little scientific work has been carried out on Socotra and the other islands owing to their isolation and in more recent times because it was a politically difficult area to visit. The first real scientific work was not undertaken until the late 19th century when a series of mostly British, Austrian and German expeditions visited the islands. The most noteworthy natural history publications stemming from these visits were Balfour's botanical monograph (1888) and Forbes' (Ed.) Natural History of Socotra and Abd-el Kuri, which includes George Boulenger's account of the reptiles. It was not really until after the second world war with further sporadic visits, that more knowledge of the fauna and flora of Socotra and the other islands was gained.

In the spring of 1993, the Ornithological Society of the Middle East (OSME) mounted an expedition to survey the lesser known areas of former South Yemen and Socotra. The survey team visited Socotra for a period of eight days from 30th March to 6th April. The primary aims of this visit were to study the birds and in particular the four species endemic to the island, and to identify priority areas for conservation. During this short period I was able to make some observations of the Socotran reptile fauna.

## GEOGRAPHY & CLIMATE

Socotra consists most of limestone overlying older metamorphic and igneous rock. The limestone forms an undulating plateau between elevations of about 300 to 900m, intersected by numerous wadis. The centre of the island is dominated by the high granitic peaks of the Hajhir Mountains which rise to 1500m. The southern coastal strip is occupied by a low-lying, semi-desert/dune area, the Nogid Plain. Access around the island is difficult with only a few unmetalled tracks suitable for vehicles and the upland areas being reachable only on foot.

Socotra has a cooler and more temperate climate compared with adjacent areas of Africa and Arabia although it is still generally hot and arid. It lies within the monsoon belt and violent south-westerly winds dominate the island from June to August. During December and January strong north and north-easterly winds occur. For the rest of the time it is usually hot and dry although the upland areas receive moisture in the form of nightly dew fall and there are a few permanently flowing streams. Climatic change and loss of vegetation cover over the past 2000 years has led to Socotra becoming increasingly arid and this may have serious implications for the native flora and fauna of the island in the long-term.

**Plate 1.** Adult *Pristurus socotranus*

**Plate 2.** Juvenile *Pristurus socotranus*

**Plate 3.** *Chameleo monachus*

**Plate 4.** Adult *Pristurus socotranus*

## FLORA & FAUNA

Socotra has been isolated from the Afro-Arabian continent for about 10 million years and during this time a unique flora and fauna has evolved. It is perhaps best known to naturalists for the high degree of endemism exhibited by the flora of the island. About 750 species of flowering plants and ferns have been recorded of which 250 or so are endemics. The island also supports a high proportion of endemic invertebrates and reptiles, some of which are now extinct. Mammals on Socotra with the exception of a few species of bat, appear to, have been introduced by man. Human settlement on Socotra dates back about 2000 years and it is through the influence of man, particularly the grazing impact of introduced livestock (including camels, cattle, goats and asses) and predators that over this relatively short period of time most habitat degradation and extinctions have occurred.

## REPTILES

In the account of Ptolmy's 2nd century AD voyage in the Arabian Sea 'Periplus of the Erythrean Sea' it was noted that rivers flowed on Socotra and at this time there were no mammals but numerous crocodiles, many snakes and large lizards. There are now no rivers on Socotra, no crocodiles, only three species of snake (excluding the Leptotyphlopidae) and no large lizards. It is likely that the larger reptiles underwent a decline, as is mirrored by many insular populations, with the introduction of mammalian predators (such as the Civet Cat *Viverra civetta*) and indeed the larger species may have been hunted directly by humans. In 1899 Forbes observed natives from the nearby island of Abd-el Kuri trading lizards (amongst other things) for rice and this may have been a more widespread practice in earlier times. It is likely that sub-fossil remains of the larger extinct reptiles are waiting to be discovered, perhaps amongst sediment in caves some of which are still occupied by troglodytes.

Of the thirteen genera or so of reptiles surviving on Socotra today, virtually nothing is known about their ecology or the effects of a continual slow degradation of habitat linked to overgrazing, collection of dead wood for fuel and the long-term increasing aridity of the island.

During the OSME visit to Socotra ten species of terrestrial reptile, eight of which are endemics (indicated below with an asterix), were observed:

***Chameleo monachus*** – One seen in woodland at Wadi Ayhaft, one of the best vegetated areas on the island. It maybe that this species is restricted to lusher areas with good vegetation cover with at least some patches of soft substrate suitable for egg-laying. If this is the case it could be confined to a relatively few localities on the island and be particularly susceptible to any further loss of natural woodland. However the numerous small date palm plantations on the island might support this species and more field work is required to assess the status of *C. monachus.* (Plate 3).

***Hemidactylus homoeolepis*** – Three observations from sea-level to 850m in a variety of habitats. One seen at dusk was remarkably well camouflaged against the bark of a dragon's blood tree *Dracaena cinnabari.* This gecko is also found in southern Yemen and Oman.

***Hemidactylus sp.*** – Observed twice on house walls in Hadibu after dark. Resembled *H.flaviviridis* but a positive identification was not made.

**Phyllodactylus trachyrhinus* – One observation after dark at about 200m. Spotlighted on granitic boulder at edge of dry, gravel bottomed wadi with small date palms and xerophytic shrubs nearby. Very little is known about this endemic gecko.

**Pristurus insignis* – Several individuals observed on rocks at two localities between 200 to 350m. It is also known to occur at higher altitudes and has generally been considered a highland species. This diurnal semaphore gecko is a large, long-legged, active foraging species. Two individuals were infested with trombiculid mite larvae, such mites are also frequently found on several mainland *Pristurus*. This is probably a reasonably common species in favoured localities.

**Pristurus socotranus* – A widespread and abundant species of rocky areas, observed up to an altitude of 850m. Mostly diurnal although a single animal was observed to be active after dark. More of a passive (sit and wait) forager compared to *P.insignis* and one individual was seen snapping up numerous small black ants. Several were noted to be hosting trombiculid mite larvae. (Plate 1, 2 & 4).

**Mesalina balfouri* – Observed at two localities, the first at just above sea-level on a gently undulating sand and gravel substrate with some low xerophytic vegetation, the second in markedly different habitat at 460m on rocks in a rough, cattle grazed pasture. Adults superficially resemble *Lacerta vivipera* whilst juveniles have a pair of broad cream-yellow, dorso-lateral stripes along each flank.

**Coluber socotrae* – One observed taking refuge under a boulder in a wadi bed with a few small pools of standing water and some scrub cover, at an altitude of 100m. The site just to the south of the Hadibu Plain is in the vicinity of the type locality. Other old records come from the lowlands of north and west Socotra and it is also known from Hakari islet, Semhah Island and The Brothers group.

**Ditypophis vivax* – One observed at dusk at an altitude of 460m on the Hamadiroh Plateau. Despite being harmless (there are probably no poisonous snakes on Socotra) this small and inoffensive snake, and doubtless *C. socotrae*, is killed by natives as an old myth has led them to believe that snakes suckle their cattle and goats for milk and by doing so they poison the animals.

*Cheloniidae* – Numerous green *Chelonia mydas* and several hawksbill *Eretmochelys imbricata* turtles were seen offshore. Their nesting status on the island is unknown.

## CONSERVATION

As part of the educational side of the OSME expedition, wildlife video recordings were made at various localities including Socotra. These are currently being edited and will be shown on Yemeni television to promote wildlife (including herpetofauna) and nature conservation in the region.

As yet there are no protected areas on Socotra although brief surveys by OSM and more exhaustive field work by Dr. A. Miller (Royal Botanic Gardens, Edinburgh) and colleagues, have identified priority areas for conservation including Wadi Ayhaft, the Hamadiro Plateau and the Hajhir Mountains. The appropriate Yemeni authorities have been alerted to the conservation needs but international support for a long-term conservation programme is required.

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