Nature conservation and Sanctuaries: Oman's efforts in conservation of biodiversity

Irma Mika & Nina Stephan

Introduction

When thinking about nature conservation in Oman one might have the impression that nature conservation is not a very urgent topic in a country that is mainly covered by deserts. But despite to this first impression the country Oman has a relatively high biodiversity especially in regions with higher precipitation.

One thousand two hundred eight plant species are found in the country including 78 endemic species. Thus, it definitely makes sense to undertake efforts for nature conservation in Oman. A national biodiversity strategy was developed taking into account the Islamic vision on biodiversity.

The National Biodiversity Strategy and Action Plan

In 1995, Oman ratified the Convention on Biological Biodiversity. The Islam asks mankind to understand and know the creation of God. Oman's vision is "a society that is conscious of the role and issues related to biological diversity, convinced of its responsibilities toward future generations and determined to sustainably use natural resources in harmony with all other living things in accordance with the laws of Islam".

Major threats to nature in Oman

The major threats to Oman's nature are the destruction of habitats and the introduction of alien species which outcompete the native species. Habitats are destroyed by inappropriate land use form e.g. overgrazing, over fishing or salinization due to irrigation. These are globally the two major reasons for the loss of biodiversity.

Nature reserves and sanctuaries in Oman

National Park Al Saleel

The Al Saleel National Park is located in the Wilayat of Al Kamil w'al Wafi in the Sharqiyah Region of Oman, at a distance of about 310 km from Muscat. It covers an area of 220 km². Concerning the ecosystem the park lies in the biome of cold winter deserts, being a part of the Anatolian-Iranian Desert province in the palaearctic realm.

The National Park Al Saleel was established on June 28, 1997 by Royal Decree No. (50/97) to protect gazelles and plantations of Samr (Acacia tortilis) and Ghaf (Acacia cineraria) trees. Other species are Acacia ehrenbergiana, Zizphus spina-christi and the shrub Maresaraas (Maerua oblongifolia) which has got cream, scented flowers.

There are three main areas of the park: The alluvial plain covered in acacias (Acacia tortilis woodland), the wadis in the mountains and the sparsely vegetated hills and rocky outcrops which form the northern boundaries and the higher elevations. The park mainly consists of acacia woodland, providing a safe habitat for many of Oman's indigenous mammals. Presently over 40 Arabian Mountain Gazelles are roaming through the park. Six subspecies of the mountain gazelle are currently recognised, with five of these listed on the IUCN Red List 2006: The Arabian Mountain gazelle (G. g. cora) and Farasan gazelle (G. g. farasani) are classified as vulnerable (VU), the Palestine Mountain gazelle (G. g. gazella) is classified as endangered (EN), the Muscat gazelle (G. g. muscatensis) and the Acacia gazelle (G. g. acaciae) are classified as

critically endangered (CR). Other mammals are the rare Gordon's Wild Cat (Felis silvestris lybica), wolves (Canis lupus) and a small number of Red Foxes (Vulpes vulpes arabica).

Future plans for the park aim to achieve sustainable use of the vegetation for feeding Arabian Oryx and the Reem Gazelle, which will be introduced once the vegetation improves. Also more Arabian Mountain Gazelles may be introduced later in order to enhance the genetic base of the species within the park. Studies will be carried out to establish permanent watering points for the animals, enabling visitors to view them.

Nature Reserves

Ad Dimaniyat Islands

The Ad Dimaniyat Islands are located in the Gulf of Oman along the coast of the wilaya of Seeb and Barka north of Muscat and east of Barka at a distance ranging from 16-18 km from the beach. The total area of 203 km² is distributed over 9 main islands that can only be reached by boat. Concerning the ecosystem the nature reserve lies in the biome of cold winter deserts, being a part of the Anatolian-Iranian Desert province in the palaearctic realm.

The Nature Reserve Ad Dimaniyat Islands was established on April 3, 1996 by Royal Decree No. (23/96) primarily to conserve the coral reefs and to provide safe nesting conditions for turtles and birds. Many migratory birds nest here in the summer as well as thousands of marine birds, e.g. terns, ospreys and Red-billed tropic birds, do so throughout the year. The islands are free from predators such as foxes, cats and dogs.

The Ad Dimaniyat Islands are Marine Protected Area (MPA). 22 species of Whales, Dolphins and Porpoises visit the surrounding sea, including endangered species like Spinner Dolphin (Stenella longirostris), Long-beaked Common dolphin (Delphinus capensis), Bottlenose Dolphin (Tursiops truncatus), Bryde's Whale (Balaenoptera brydei), Humpback whale (Megaptera novaeangliae), and False Killer Whale (Pseudorca crassidens). Large numbers of Hawksbill turtles (Eretmochelys imbricata), a globally endangered species, and Green turtles (Chelonia mydas) also nest on the islands' sandy beaches. Turtle breeding reserves are located at the Ad Dimaniyat Islands and Ras al-Jinz, which is part of the Turtle Reserve Ra's Al Hadd. The reserve encourages environmental research and ensures sustainable use of the marine environment by local fishermen.

Turtle Reserve Ra's Al Hadd

The Turtle Reserve Ra's Al Hadd is located in the Wilayat of Sur in the As Sharqiyah Region, at a distance of 390 km from Muscat. The total area of 120 km² has got a coastline of 42 km. Ras al Jinz is part of the reserve. It was proclaimed as a reserve in 1996 by Royal Decree No. (25/96). Concerning the ecosystem the nature reserve lies in the biome of cold winter deserts, being a part of the Anatolian-Iranian Desert province in the palaearctic realm.

The Ra's al Hadd Peninsula attracts every year between 6000 - 13000 turtles from the Arabian Gulf, the Red Sea and the East African coast. The physical resources of the reserve are sandy beaches, mountain ranges and archaeological sites. The biological resources are, besides the sea turtles, coral reefs, mangrove trees, Ghaf tree (Prosopis cineraria) woodlands, many bird species, Arabian gazelles, Red foxes, hedgehogs and wild hares.

Jebel Samhan

The Nature Reserve Jebel Samhan is located in the Dhofar Governorate, at a distance of about 150 km from Salalah. It covers an area of 4500 km². The Nature Reserve Jebel Samhan was established on June 28, 1997 by Royal Decree No. (48/97). Concerning the ecosystem the

nature reserve lies in the biome of warm deserts/semi-deserts, being a part of the Arabian Desert province in the palaearctic realm.

It is predominantly made of limestone highlands rising from the coastal plains. Jebel Samhan forms a range of craggy peaks, which are separated by wadis and canyons. Hasik village, accessible only from the sea, lies on a small gravel area east of the Jebel. The sea has eroded much of the coastline so the limestone cliffs are sculptured and undercut at the base. The area provides perfect habitats for the Arabian Leopard, Nubian Ibex, Arabian Gazelle, striped hyenas, caracal, wild cats, foxes and wolves. The steep cliffs make ideal breeding sites for rare species of birds and the surrounding sea provides food for Masked Boobies, Socotra Cormorants, whales, Green turtles and Loggerhead turtles.

Jebel Habrer receives the monsoon mists for which Dhofar is famous. Due to the humidity and rainfall, it is the only Arabic location of the African tree Papea capensis. It is a long-lived, hardy, evergreen tree with a height of 2-8 m. The red fruit is edible.

There is no resident human population in Jebel Samhan, although it is used by shepherds for grazing their animals, and locals gather frankincense from the trees in the wadis. These activities are allowed when carried out in a sustainable way.

Reserve The Khawrs of the Salalah Coast

The Nature Reserve The Khawrs of the Salalah Coast is located in the Dhofar Governorate. It consists of several areas at a distance ranging from 5 – 40 km. The area of the Khawrs varies from few hectares to more than a hundred hectares. Concerning the ecosystem the nature reserve lies in the biome of warm deserts/semi-deserts, being a part of the Arabian Desert province in the palaearctic realm. The Khawrs of the Salalah Coast were proclaimed as 'Reserves' on June 28, 1997 by Royal Decree (49/97). The reserves physical resources are Khawrs, springs and archaeological sites. The biological resources of the reserves are Mangrove trees and vast numbers of birds and fish.

Sanctuary Arabian Oryx

Jiddat al Harasis is located within the central region of Oman between the desert Rub' al-Khali in the northwest and the Arabian Sea in the southeast. The site is surrounded to the north by the Hajjar mountains and to the south by the Dhofar mountains. The nearest large settlement is Haima to the west. In the southwest are the Rima and Marmul centres of oil extraction. The sanctuary encloses an area of 27,500 km².

In 1976 the Ministerial Decision No. 40 provided for the protection of selected species. In 1979 the Royal Decree No. 26 established national parks and nature reserves, but has never been implemented. Therefore the site is not legally protected and site boundaries and management zones remain undefined. In 1994 the Royal Decree No. 4 gave responsibility for the Sanctuary to the Ministry of Regional Municipalities and Environment. It is inscribed on the World Heritage List. The Sanctuary Arabian Oryx is owned by the Government of the Sultanate of Oman, and administered from Haima, the nearest large settlement to the west.

Jiddat al Harasis is a plateau at an altitude of 100-150 m, consisting mainly of karst limestone. Areas of fossil wood occur on limestone surfaces of the Jidda', and escarpments are locally highly fossiliferous. An unusual desert climate with thick fog banks occurs. Considerable precipitation at night and early morning occurs from fog moisture and dew. This precipitation helps significantly to sustain the vegetation and wildlife between the unpredictable rains. Temperatures in July rise up to 34°C, in January and February they can drop to 15°C. Mean annual rainfall is less than 50 mm, with the possibility of several consecutive rainless years.

Plant biomass is very low. The greater part of the Jiddat al Harasis is sparsely vegetated with small trees and dwarf shrubs growing in haylah depressions. The most common vegetation of this type is Acacia tortilis and A. ehrenbergiana, along with Prosopis cineraria. Very extensive woodlands of Acacia tortilis and Prosopis cineraria grow near the large wadis on the southern borders of Jiddat al Harasis. Many of these trees which evidently extend their rooting system down to the water table are very old, the regeneration is sparse.

The fauna of the region is typical of the Arabian Peninsula. The Jidda' is the only place in the Middle East where the houbara bustard receives total protection throughout the year. Some of the most frequent predators are the red fox (Vulpes vulpes arabica) and Ruppell's sand fox (V. rueppellii). Other carnivores are caracal (Felis caracal) and Arabian wolf (Canis lupus arabs) which is occasionally reported. Wild cat (Felis sylvestris) and ratel (Mellivora capensis) have been reported but may no longer exist. Hares (Lepus capensis) and hedgehogs (Paraechinus aethiopicus) are widespread but rarely seen. The most numerous large herbivores are the Arabian mountain gazelle (Gazella gazella gazella) and Sand gazelle (G. subgutturosa marica). A small but viable population of Nubian ibex (Capra ibex nubiana) lives on the Huquf escarpment.

The Arabian oryx (Oryx leucoryx) is the largest indigenous mammal species inhabiting the Jidda'. In 1961 the 'Operation Oryx' ensured that a small number of animals were transferred to zoos for captive breeding. In 1963 the ‘World Herd’ at the zoo in Phoenix, Arizona was formed with ten oryx from which three were originally captured in Yemen PDR. In 1972 the last wild Arabian oryx (Oryx leucoryx) in Arabia were killed on the Jidda‘. In 1982 the descendants of the World Herd animals were reintroduced in the deserts of central Oman. The size of the herd increased up to 400 individuals in October 1996. Since then heavy poaching threatens the existence of the free herd. By 2002 the free herd was almost poached out, but a fenced herd remains. Unfortunately, this herd consists of only 12 female and 28 male oryx.

The Jiddat al Harasis is now heavily used by oil companies, vehicles and the native people. The perennial vegetation is heavily exploited by livestock. Serious problems are apparent for important Prosopis cineraria and Acacia tortilis woodlands. They are dying off due to a combination of old age and heavy browsing by livestock. The lack of regeneration is however more serious, there are few young trees to replace the mortality.

Discussion

Oman has quite ambitious goals regarding nature conservation. The need to diversify the economy leads to the search for alternative source of income. One hope is that eco-tourism could be one of those sources. Environmental factors should be taken into account in the development of a tourism strategy. Effective protection must be established before tourism activities are allowed and may damage the ecosystem. Law enforcement and the implementation of the National Biodiversity Strategy seem to be the key issues in the question whether Oman will be successful in nature conservation.

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