

Conservation in Saudi Arabia

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During the last 5 years a major conservation programme has been under way in the Kingdom of Saudi Arabia. The author worked for the National Commission for Wildlife Conservation and Development between 1987 and 1990, and in this article gives a personal view of the achievements of the organization and the problems it faces in trying to implement its policies.

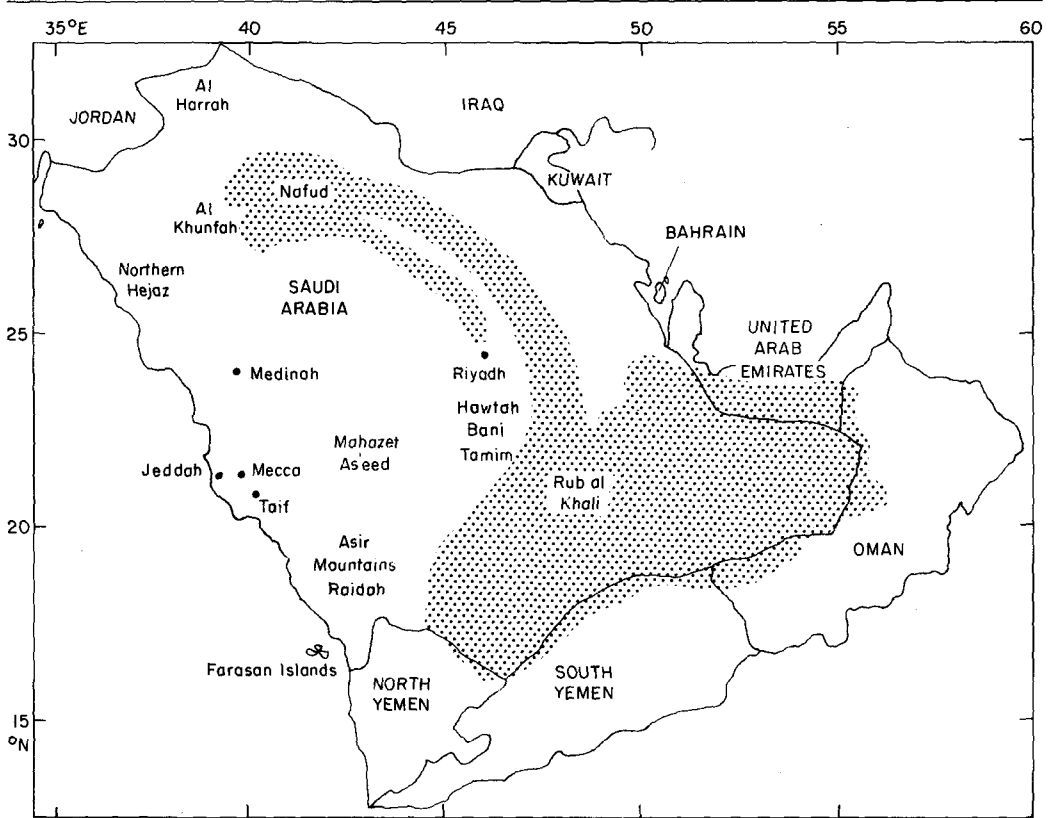
In common with the poor Saharan nations, Saudi Arabia consists almost entirely of desert. Unlike them, it is a rich country, and this factor has had a profound impact on the environment. There are sand-dunes, palm-fringed oases, bedouin tribesmen and many camels; there are also modern cities, a network of highways, and mountains of debris from an affluent society. All the bedouin now have pick-ups and water trucks. Much of the land surface consists of sand and gravel plains, but there are high mountains, with forests of dwarf junipers growing on the upper slopes, spectacular sandstone gorges, extensive Red Sea and Arabian Gulf coastlines with off-shore islands, and even a few areas of marshland.

There was once also abundant wildlife. Early in this century explorers saw huge herds of sand gazelle *Gazella subgutturosa marica*, together with Arabian oryx *Oryx leucoryx*, mountain gazelle *Gazella gazella cora*, Saudi dorcas gazelle *Gazella saudiya*, cheetah *Acononyx jubatus*, leopard *Panthera pardus nimr*, ostrich *Struthio camelus* and onager *Equus hemionus* (Carruthers, 1935; Raswan, 1935; Vesey-Fitzgerald, 1952). Within historical times there were also lions *Panthera leo*, wild cattle *Bos* sp. and wild camels *Camelus dromedarius*. In the last 60 years all of these large mammals have been greatly reduced in numbers, and the cheetah, onager, ostrich, Arabian oryx and Saudi gazelle have been exterminated from the wild (Habibi, 1986; Kingdon, 1988; Thouless *et al.*, in press). Their demise was caused primarily by the introduction of motorized hunting, which in these open areas caused havoc. Initially much of the

hunting was done by foreign oil-workers, but the local population soon joined in. The pressure on wildlife caused by hunting was exacerbated by massive habitat destruction. At one time both the numbers and distribution of livestock were limited by periodic droughts and the need to water animals from the small number of permanent water sources. However, the ready availability of water pumps and tankers, the sinking of many new wells, and subsidies for supplementary fodder have resulted in huge increases in livestock numbers and have allowed pastoralists to keep their flocks in previously inaccessible areas at all times of year. The resulting overgrazing has greatly reduced the production of rangelands.

With increasing oil production and industrial development, pollution of coastlines became a potential problem and it was on this issue that the limited conservation activities of the 1970s and early 1980s focused, with the establishment of the Meteorological and Environmental Protection Agency. Little attention was paid to the loss of wildlife and rangelands. Although the Ministry of Agriculture established a national park in the Asir Mountains, it afforded no effective protection for wildlife or habitats.

It was only in 1986 that a governmental organization dedicated to conservation, the National Commission for Wildlife Conservation and Development (NCWCD), was established. Its foundation resulted from the interest of HRH Prince Saud al-Faisal, the Foreign Minister, in conservation. He had already set up a breeding centre for houbara



Arabian peninsula showing major geographical features and sites of protected areas. Stippled area shows major sand deserts.

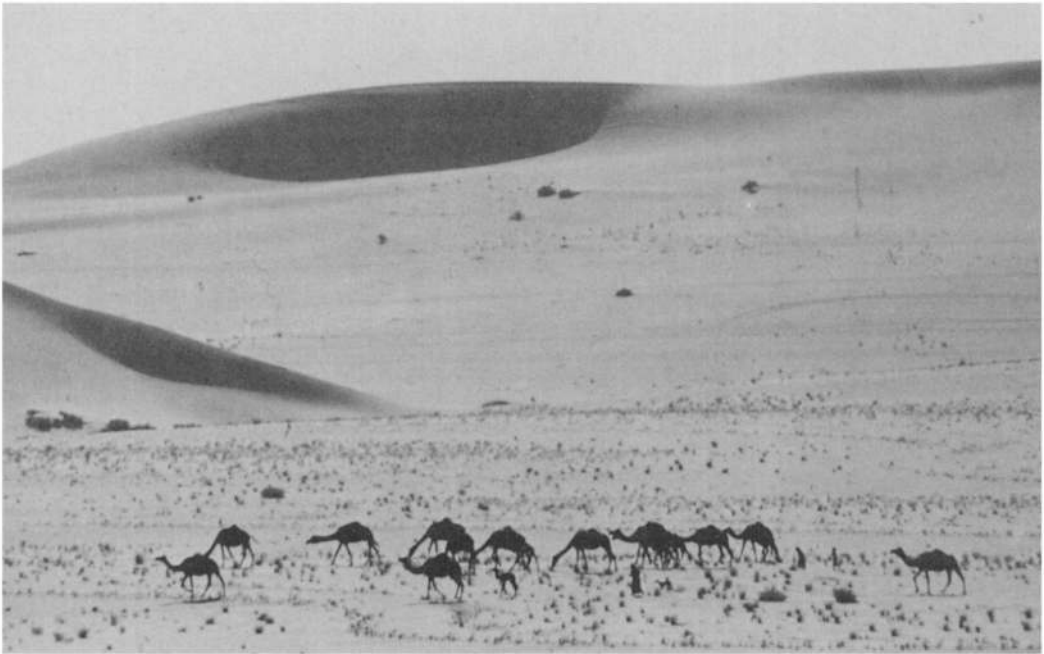
bustard *Chlamydotis undulata*, the favourite prey of local falconers, which has almost disappeared in the wild. The bustard breeding centre was absorbed into NCWCD as the National Wildlife Research Centre (NWRC). The main activities of NCWCD are in the fields of endangered species protection, establishment and management of protected areas and public awareness. These areas will be discussed in the following sections.

Species protection

The wildlife species that have attracted the most attention are the game animals, particularly the houbara bustard, the Arabian oryx, the Nubian ibex *Capra ibex nubiana* and the gazelles. As many of these are extinct or seriously endangered in the wild, but exist in reasonable numbers in captivity, captive breeding

with the aim of reintroduction has been a major part of the Commission's activities, accounting for approximately a third of the operating budget. This is a much higher proportion than is spent by most national conservation agencies. When capital costs are included, the houbara project alone has been one of the most expensive single-species wildlife projects in the world. Despite this it has not been a great success, with only 47 surviving captive-reared chicks in early 1991, compared with the large numbers that were initially predicted. A major cause of the failure was an inadequate understanding of the breeding behaviour of the species in the wild. The project has also had damaging effects on houbara populations in other countries, as a result of the taking of eggs and purchase of smuggled adult birds to provide breeding stock.

Arabian oryx have also been given high priority, because of their cultural importance, and



Camels in the central sands of the Rub al Khali (*Chris Thouless*).

the success of the Omani reintroduction programme. At the time of the establishment of NCWCD there was a large oryx herd at the late King Khalid's farm at Thumamah, near Riyadh. Unfortunately the poor conditions at the farm after the king's death resulted in an epidemic of tuberculosis, which became expressed as a result of the stress of the shipment of animals to NWRC. Consequently much of the activity of the NWRC has been directed towards successfully controlling the disease in the herd (*Abu-Zinada et al.*, 1988). It was necessary to bring in animals from USA and Jordan to stock the first reintroduction site of Mahazet As'eed. This is a desert area of relatively little intrinsic interest, which was once used by the royal family as a hunting area. It has been enclosed by a 120-km fence and 18 oryx were released in February 1990. A range of other animals will also be released there. This site is a good illustration of overgrazing; during a single year considerable improvement in the vegetation cover has resulted from the exclusion domestic stock.

Another breeding and research centre, operated by the Zoological Society of London, was

set up at Thumamah in late 1987. The basis of this, the King Khalid Wildlife Research Centre, is the remainder of the royal collection following the removal of the oryx, which consists of about 600 sand and mountain gazelles with some other species. Work here concentrates on research and breeding of the gazelles with the aim of reintroduction to the wild. Twenty mountain gazelles were reintroduced in a reserve south of Riyadh in late 1990. Of these 18 are surviving and have adapted to their new home.

Although captive breeding is necessary for some species, such as the Arabian oryx which is extinct in the wild, it is not clear what is the conservation benefit of planning for reintroduction of species that still exist in the wild, but are threatened. *In-situ* conservation would be more cost effective. For example resources are being put into the introduction of mountain gazelle into the reserve near Riyadh, while simultaneously unprotected wild populations in the foothills of the Asir Mountains are being lost, partly as a result of lack of funds for their protection. It is certainly true that reintroductions are useful for public

awareness and for generating political support, but the emphasis being placed on this part of the Commission's activities is excessive, in view of the problems with safeguarding wild populations.

The most effective *in-situ* protection comes from protected areas (see next section) because the legal basis for protection from hunting is unsatisfactory. There are hunting laws in existence that provide complete protection for gazelles and ibex as well as a closed season for hares *Lepus capensis* and gamebirds, and which restrict hunting methods to the use of salouki dogs and falcons. However, there has been virtually no enforcement of these laws. Few people, even within the Commission, know exactly what the laws are, and people outside have been confused by television advertisements attempting to explain them. There is no effective mechanism for enforcement, with Commission rangers having no powers of arrest, and other law enforcement personnel ignorant of, indifferent to, or actually violating the laws. Part of the reason for this is that Saudi Arabia uses the Islamic Sharia legal system; if particular issues (such as wildlife pro-

tection) are not specifically covered by the Sharia, new laws can be made by Royal Decree, but these lack the authority of the Sharia.

Saudi Arabia has also taken steps to control the trade in endangered species, with observer status at CITES, and a trade licensing system that is similar to the CITES system. Although this has had some effect, it is also hampered by the lack of an effective legal framework and many endangered species from abroad and from within the country are for sale in pet shops.

Protected areas

One of the main aims of the Commission is the establishment of a system of protected areas. A system plan has been prepared by an IUCN consultant; this sets out the rationale and guidelines for a comprehensive protected-areas system. It includes 103 existing and proposed terrestrial and marine sites, accounting for 8.1 per cent of the Kingdom's total area, and covers all the major biomes of the country.



Hawtah Bani Tamim (Chris Thouless).



Arabian oryx at the National Wildlife Research Centre (*Chris Thouless*).

However, most of the reserves established to date have resulted from personal interest of NCWCD's board of directors in particular areas, rather than from their priority in the system plan.

The first reserves, Al Harrah and Al Khunfah, were set up in 1986. Al Harrah consists of a bleak landscape of broken lava flows and old volcanoes. Its relative inaccessibility meant that remnant populations of houbara bustard and sand and mountain gazelle could survive there. At the time of its establishment bedouin pastoralists were required to leave a core area of 15,000 sq km, thus allowing vegetation to regenerate from the damaging effects of sheep and goats; a ranger force was put in place and regular aerial patrols were started to prevent illegal hunting. These policies were effective, but unfortunately there is local opposition to the reserves, partly because the rangers are of the Murrah tribe from the south of the country. Although sheep grazing has been prevented, free-ranging camels have come into the area in increasing numbers, and now their density is high enough to prevent

regeneration of many of the plants most palatable to gazelles.

Around Al Harrah a large area in the north of the country has been designated a no-hunting area. However, a lack of effective patrolling and enforcement means that protection is only nominal, except in some areas that have permanent ranger camps. These include the mountainous At Tubaig, adjacent to the Jordanian border, which once held most of the large Arabian mammals, including cheetah, leopard and oryx, and still contains some mountain gazelle and ibex. Another reserve is Ghurrub, an area of 2000 sq km, where the majority of wild sand gazelle live in Saudi Arabia, a population of 200–400 individuals. More vigorous management than in other reserves has protected these despite a lack of effective legal safeguards.

The large mammal species that has survived better than any other is the Nubian ibex, probably because it is capable of surviving in the most inaccessible rocky areas (Habibi and Grainger, 1990). The Hawtat Bani Tamim Reserve has been set up for its protection. It

consists of a series of steep-sided gorges on the main Tuwaiq escarpment, close to Riyadh. Again, problems have been encountered with free-ranging camels, but they should be easier to control here because of the restricted access to the wadis.

The Farasan Islands, in the Red Sea, are of international importance. They hold breeding colonies of many seabirds and turtles, and there are major fisheries based on the surrounding coral banks. There is also a population of about 500 individuals of an endemic subspecies of the mountain gazelle *Gazella gazella farasani* (Flamand *et al.*, 1988; Thouless and Al Bassri, 1991). These islands have recently been designated as a marine and terrestrial reserve, and rangers have been established there. However their assigned task is to prevent poaching of gazelles, which is not currently a serious threat to the population, and they are not dealing with the more serious problems of protecting seabird and turtle nesting sites.

Other sites have been proposed as protected areas, but active management has not yet been implemented. One of the most important of these is the Raidah escarpment, in the Asir Mountains in the south-west of the country. This is a small area of no more than 10 sq km in a steep-sided valley, rising about 800 m. Because of the altitudinal variation there is a wide range of habitats, the most important of which is a band of juniper forest sustained by the moisture brought in by clouds. This habitat is very restricted in area, and holds a number of endemic bird species as well as leopards, hyaenas *Hyaena hyaena* and caracals *Caracal caracal*. The vegetation is complex and little studied.

The present system of reserves does not include all the major biomes and covers a small proportion of the total land area. There is an urgent need for more areas in habitats such as sand desert, on the Tihama coastal plains, in wetlands, and in the mountain areas. There are also problems with threats to existing reserves, where they are in competition with other perceived national interests. For example, a mineral-survey team has recently run transects through Al Harrah, a major oil

field has been found in the vicinity of Hawtah Bani Tamim, road-widening is taking place in Raidah and there are major development plans for the Farasan Islands. Again there is no real legal basis for the establishment of reserves and this makes it difficult to fight any threats to their existence. A low priority given to conservation within national planning means that environmentally damaging development can take place without effective opposition.

Education and publicity

The National Commission has a large education and public relations department. Its main activities have consisted of producing booklets and posters, making short television programmes and providing press releases. A mobile education unit has been purchased and will start operations in the near future. Some of the posters have been very well received, but much of the activity of the department is bedevilled by the fact that its members are not well informed on conservation matters. Its successes have been chiefly in raising the overall level of consciousness about wildlife among the general urban community. Little attempt has yet been made to contact local communities around the protected areas and other areas of conservation importance. This has only been carried out by a few field workers, for whom it is an incidental adjunct to their main research work.

Conclusions

The National Commission for Wildlife Conservation and Development has done a great deal in the first 5 years of its existence, and Saudi Arabia probably makes a greater financial commitment to conservation than any other Arab country. However, the recent oil spill has created a major distraction from current programmes and will divert resources towards coastal habitat restoration. The Commission's major achievement consists of the establishment of protected areas, particu-

larly the large ones in the north, which have safeguarded populations of sand and mountain gazelle, ibex, and houbara bustard. Important steps have also been taken in the field of public relations. However, there are many problems still to be resolved and, ironically, many of these have been caused by the rapid expansion of the Commission. The most pressing of these is the lack of experienced staff. None of the Commission's local staff had any real experience in conservation before the organization was set up, but it has been necessary to fill positions at all levels. The result of this is that people with little experience, training, and in some cases, motivation, may be filling senior positions. This could be solved in time if it were possible to fire incompetent members of staff. However, this is not easy within the Saudi Arabian government service, where there is an impressive security of employment. There are a number of expatriate experts, some with considerable experience in wildlife conservation and management. However, they are not used effectively, because none is in executive positions (except in the breeding centres) and their advice is often ignored. Because they do not bear responsibility for implementation of policies, there is little pressure for their advice to take account of political realities and constraints.

Another major problem is that the Commission's board of directors consists largely of senior members of the royal family who make most major decisions without consulting the scientific staff. In addition the continued participation by these Princes in destructive forms of hunting seriously damages the international image of the Commission. Saudi and other Gulf sheiks and royalty are still having devastating effects on wildlife populations, particularly those of houbara and gazelles, in countries such as Sudan, Algeria, Morocco and Pakistan. Although these activities are often carried out with the acquiescence of influential people in local governments, they are usually in contravention of the normal legal system.

It would be easier to find solutions to these problems if there were greater accountability and some way to expose the issues to public debate. However, the press in Saudi Arabia closely follows the government line and there is little mention of controversial issues. At the moment the conservation movement is entirely a government initiative and there is stiff opposition from the rural population when it declares new sites for nature protection. Without public participation it is difficult to see how the progress made so far by the National Commission can be maintained in the face of increasing bureaucratic inertia.

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