

## WHERE ARE WE IN TERMS OF ARABIAN ORYX CONSERVATION?

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## INTRODUCTION

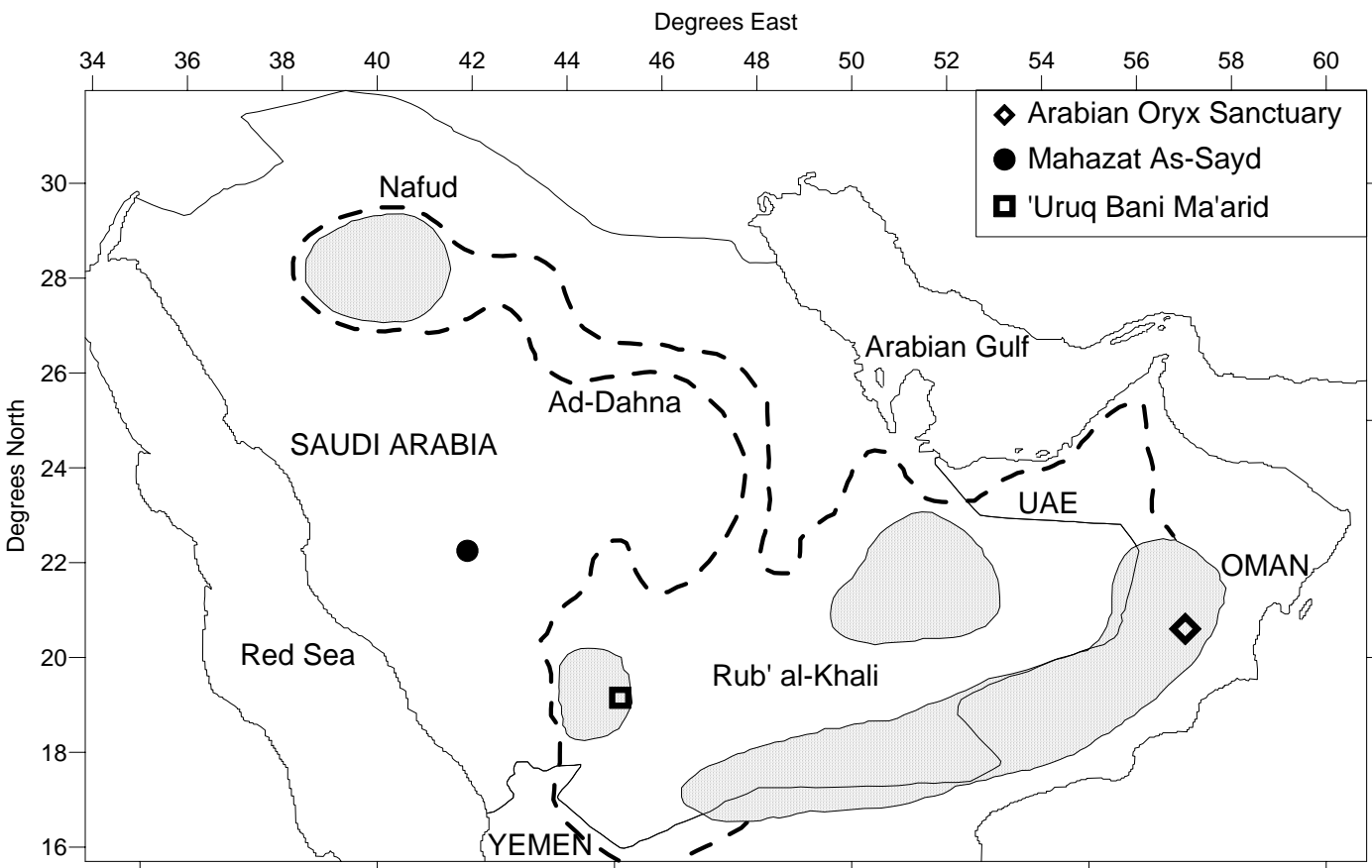
The people of Arabia remain fascinated by the Arabian oryx because of its seemingly uncanny ability to survive in one of the harshest desert environments on the planet. Elsewhere, this desert ungulate similarly intrigues people, in part also due to the fact that they were brought back to the deserts of Arabia following extinction in the wild in 1972.

But where are we in terms of Arabian oryx conservation today, 45 years after "Operation Oryx" and 25 years since the first Arabian oryx reintroduction into the wild? Moreover, which pertinent decisions do we need to take to facilitate the survival of the Arabian oryx in these and other reintroduction sites over the next 50 years and more?

## REINTRODUCTION SITES

The IUCN (1987) defines a reintroduction as "the intentional movement of an organism into a part of its native, historic range from which it disappeared due to either human disturbance or catastrophe." For the purposes of this article, I add a further proviso and will only consider those reintroductions undertaken by conservation organisations in the peninsula where animals were released into habitat that has not been deliberately altered or modified through the planting of trees, irrigation, permanent water provisioning or provision of feed on a regular basis.

Bearing this in mind, three Arabian oryx reintroductions have taken place in the Arabian Peninsula. These are into the unfenced Arabian Oryx Sanctuary of Oman (33,920 km<sup>2</sup>), the fenced Mahazat As-Sayd Protected Area (2,244 km<sup>2</sup>) and the unfenced 'Uruq Bani Ma'arid Protected Area (12,500 km<sup>2</sup>); both the latter two protected areas are located within the Kingdom of Saudi Arabia (Figure 1). In each case the explicit aim was the establishment of a viable, self-sustainable population



**Figure 1:** The location of the three Arabian oryx reintroduction sites in the Arabian Peninsula, in relation to the main sand deserts (dotted lines) in the area (adapted from Stewart 1963).

in natural Arabian oryx habitat.

While various successes have been achieved along the way, and while a lot has been learnt about reintroduction procedures in general (see Stanley-Price 1989) and oryx biology in particular (e.g., Tear, Mosley & Ables 1997; Spalton 1999) things have, however, not been going according to plan with regards to regional Arabian oryx conservation. This is despite the fact that awareness about oryx conservation among the Arabian public is undoubtedly higher today than at any time during the previous 45 years.

### Arabian Oryx Sanctuary

At one time a major conservation success story, the more recent history of the oryx population in the Arabian Oryx Sanctuary of Oman has been less encouraging (Spalton, Lawrence & Brend 1999). Currently this population consists virtually entirely of an estimated 60 to 70 male oryx and significant numbers of female oryx have been absent in the wild for almost a decade now. However, the fact that approximately 100 females are being held in captivity suggests that this population could in future be re-established again. Moreover, definite steps have been taken to increase and thereby ensure the future security of this oryx population (Spalton *pers comm.*).



**Plate 1:** Despite recent setbacks, wild oryx herds could again become a common site in the Arabian Oryx Sanctuary of Oman (Photo: Martin Strauss).

During August 2007, however, the Arabian Oryx Sanctuary - and therefore also regional conservation efforts - suffered further setbacks when it was decided to decrease the size of the sanctuary by 90%. This, in turn, resulted in the United Nations Educational, Scientific and Cultural Organization (UNESCO) deciding to remove the Arabian Oryx Sanctuary from its list of World Heritage Sites - the first time ever that this has happened in the history of UNESCO. The World Heritage Site Committee was quite clear with regards to the reasons for its unprecedented decision by stating: "After extensive consultation with the State Party, the Committee felt that the unilateral reduction in the size of the Sanctuary and plans to proceed with hydrocarbon prospection would destroy the value and integrity of the property, which is also home to other endangered species including, the Arabian gazelle and houbara bustard" (UNESCO Press Release No.2007-82).

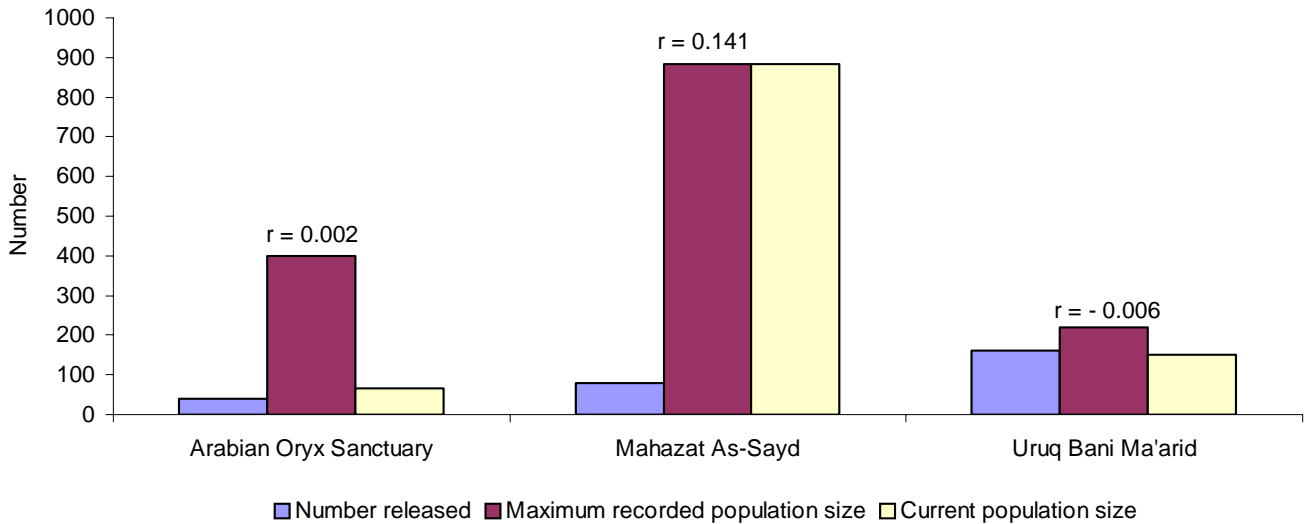
### Mahazat As-Sayd Protected Area

The oryx reintroduced into the fenced Mahazat As-Sayd Protected Area is currently the only viable, self-sustainable Arabian oryx population in the peninsula, with surveys during 2006 indicating that the population numbers in excess of 850 animals (Strauss & Anajriyah 2007).

However, Treydte *et al.* (2002) suggested that the very success of this population - in combination with the fenced nature of the protected area - might well be its downfall over the long term. Their model indicated that the variability of the environment (i.e., rainfall) and the resulting periodic food shortages could lead to large-scale population fluctuations and even extinction of the population under certain conditions. Food shortages have already occurred within the area during some years with relatively large numbers of animals dying as a result.

However, due to the variability of the environment in the peninsula it seems highly unlikely that Arabian oryx ever occurred in stable, high-density populations over any significant time period. This is in stark contrast to the situation that is being advocated for the area. Management suggestions - such as the annual removal of "surplus" animals to keep the population at a relatively stable level (Treydte *et al.* 2002) or the construction of waterholes to try and carry animals through drought periods - could have far reaching effects for the oryx population and the entire protected area.

The model developed by Treydte *et al.* (2002) was only a first attempt at modelling the oryx population and considerable



**Figure 2:** Summary of the performance of the three reintroduced Arabian oryx populations in the Arabian Peninsula from the year of first release to December 2006. Population growth rates were calculated using the formula  $r = [\ln(N_t/N_0)]/t$ , where  $N_t$  = number of animals alive after t years,  $N_0$  = total number of animals released, and t = number of years since first release (adapted from Strauss 2007).

refinement of the model needs to be done in the future. Simultaneously, innovative ways need to be investigated to make wise use of the animals in this area of limited size.

**'Uruq Bani Ma'arid Protected Area**

The population in the unfenced 'Uruq Bani Ma'arid Protected Area still persists today, 12 years after the first animals were released into the area. Of the reintroduction sites considered here, this is the harshest and most variable site with c. 45mm of rain per annum. It is therefore not surprising that this population has persisted because of frequent supplementation of animals that were either captive-bred at the National Wildlife Research Centre (NWRC) in Taif, Saudi Arabia, or



**Plate 2:** Oryx in 'Uruq Bani Ma'arid are subjected to highly variable environmental conditions and a long-term metapopulation management approach could help ensure population persistence (Photo: Maartin Strauss).

animals that were wild-caught in Mahazat As-Sayd. At last count this population was estimated at  $\leq 150$  animals (Strauss & Anajariyah 2007). The estimated population size is less, however, than the total number of animals released into the area. It seems plausible that this population might not be able to become self-sustainable over the long-term and that it

might have to be managed as part of a larger Saudi Arabian meta-population (Strauss 2002).

A crude summary of what has been happening in all three reintroduction sites is presented in Figure 2. It is obvious that only the oryx population in Mahazat As-Sayd has showed near-consistent population growth from the time of reintroduction, with the current population being much larger than the total number of animals released into the area (therefore the positive growth rate,  $r$ ). The population growth in the Arabian Oryx Sanctuary remains slightly positive only because the animals remaining in the wild are more than the 40 oryx that were initially reintroduced. However, because there are no females left in the wild, the Arabian Oryx Sanctuary obviously does not contain a functioning population. Because of the periodic high attrition rate of animals in 'Uruq Bani Ma'arid, especially recently reintroduced animals under sub-optimal conditions, the population has shown negative population growth to date.

The above illustrates that each of the three reintroduced Arabian oryx populations in the peninsula face serious challenges that need to be addressed to ensure long-term survival. It is imperative to realise that each of these populations have to be managed to a greater or lesser extent to ensure their long-term survival. Imaginative ways of making use of relatively large numbers of surplus animals need to be investigated as a matter of urgency.

### THE FUTURE

But what else can be done, considering all that has been previously? To start with, it is worth reiterating that the existence of a species recovery plan is not an end in itself, and all the regional conservation organisations should assess the performance and shortcomings of their programs regularly, whether they embarked on reintroduction or not. Without goals and targets to be achieved – and the regular review of these – little progress will be made. Also of particular importance is clarifying the role of private collections in the various conservation strategies. It is not clear exactly how many oryx are to be found in regional private collections, but a recent estimate puts the total number of oryx in the region of 8 000 animals; the majority of which are in captivity.

Unfortunately, however, there is a general lack of genetic management in many of the captive populations (CAMP 2001), which implies that the conservation value of many of the animals in the region is doubtful. Consequently it is estimated that a maximum of 20% of all the oryx in the peninsula are currently of known conservation value. Those collections that can potentially contribute to conservation needs to be identified and breeding management plans should be agreed upon, implemented and adhered to. It is therefore encouraging to note that the Coordinating Committee for the Conservation of the Arabian Oryx (CCCAO), formed in 1999, has recently again initiated regional meetings to try and find ways of addressing these issues. It is essential, however, that these gatherings result in concrete and measurable conservation action.

Although progress has been made over the last 45 years, the 2001 consensus reached by regional biologists, administrators and other stakeholders that the status of the Arabian oryx should be changed from “endangered” to “vulnerable” (CAMP 2001), has been premature and over-optimistic. There are still considerable problems to overcome to ensure the future survival of the Arabian oryx in the deserts of Arabia. These are made all the more difficult due to the rampant economic development that has again commenced in the area. Recently Saudi Arabia's Minister of Economy and Planning announced: “By 2009, we intend to eradicate poverty from the country” (Arab News, Wednesday 25 April 2005; 07 Rabi' al-Thani, 1428). This is highly commendable and should proceed in conjunction with the other Millennium Development Goals, including environmental sustainability and everything that it entails.

Ensuring the survival of the Arabian oryx and other species/ecosystems in the region is too important a task to delegate to conservation organisations only. There is a need for conservation to become a priority area for both national and regional governments; something that has unfortunately been lacking to a large extent. There are cascading effects in operation here: if governments don't take conservation seriously, as indicated by long-term commitment, sufficient funding and stringent laws and penalties (amongst other things) to back-up their conservation organisations, some sectors of society won't take it seriously either.

Moreover, conservation organisations and governments need to sell conservation locally; grabbing the attention of the people of Arabia will facilitate successful, sustainable conservation. This could be done in any number of ways and it is important that due attention is given to attracting local, talented, young professionals into biology in general and into conservation biology in particular. This is something that remains lacking across much of the region.

While admitting that there are significant challenges, the picture is not only bleak. Significant progress has been made since 1972, but there is a lot more that needs to be done in the populations already established, captive populations and possibly additional reintroduction sites to ensure the long-term survival of the Arabian oryx in the region.



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