Reintroduction of Arabian Oryx in Dubai Desert Conservation Reserve, Dubai, UAE.

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Background:

The Arabian oryx (Oryx leucoryx) is a very significant species to the Arabian fauna as it is the biggest antelope in Arabia and is an essential part of the indigenous heritage and culture. The species was extirpated from the wild during the early 70s of last century. Many efforts were endeavored allover Arabia to restore the species. Examples are illustrated in the work done in Saudia Arabia in Mahazat Asayed (Greth & Schwede, 1993, and Mesochina, 2003) and Uruq Bani Maarid (UBM) (Ostrowski, 2001 and Bedin, 2003) in addition to Geddat El Harasis re-introductions in Oman (Jungius, 1978). UAE deserts were also part of the historical range of the species.

With the growing awareness of conservation and ecological restoration in Dubai, a flagship step was taken to set aside an area for conservation and designated as a nature reserve. An initial area of 25Km² was fenced out and cleared from livestock and other activities in late 1999 and termed as Al Maha Reserve (AMR), subsequently in 2003 the area was scaled up to 225 Km² forming Dubai Desert Conservation Reserve (DDCR) which is a system of sand dunes impregnated with few gravel plains (24° 49.5'N 55° 40.5'E). Diversity restoration and re-introductions of the indigenous species are the main objectives of the reserve. Currently re-introducing the Arabian Oryx (among other species) is the main ongoing conservation activity in DDCR.

Although the area is not too big compared to the large homerange of oryx, this process of re-homing the species to its habitat is praised as the species is still conservation dependant for its survival through its range. A conservative opinion would rather rephrase it as semi-wild population but I think that it is of more value to the overall species survival specially bearing in mind the fact those large undeveloped natural habitats available to be set aside as conservation areas are indeed rare commodities in UAE and Arabia in general.

Reintroduction:

The process started with 2 groups, the first of 38 animals that were introduced to AMR in February 1999. These animals were placed in a pr-release boma and then released to AMR which comprises the core conservation area. These animals were donated by royal private collector and unfortunately their origin couldn't be traced. However, the offspring of this group showed some patterns of losing the natural colouration and had relatively pale frontal spots and white legs. Thus, it was decided to mix these animals with new blood to enhance the genetic variety of the herd and extend the pool of genes.

In November 1999 about 79 animals from Whitesand Missile Base, USA were brought in to the reserve and were directly released into the reserve. Again, no information was available about sex ratios of the second lot also. Oryx in AMR are of free-ranging status with feed supplements in small amounts of grass and alpha-alpha pellets provided on selected feeding spots. Water is also supplied in semi-natural water holes.

By the end of 2003 the Oryx population has grew and reached 194 as determined by total counts, in the same year the reserve was scaled up to encompass 225Km of dune desert as fenced area but with keeping the inner AMR within its original fence. During 2004 two processes of translocation were done involving moving 2 groups of Oryx from AMR to the bigger perimeter of DDCR.

A group of 23 Arabian oryx were collected from the AL Maha herd into a boma by luring the animals using feed into the collection boma. On the morning of March 14th 2004 an operation of translocating the herd to the bigger fenced area of DDCR was set on. A total of 23 animals including 8 males, 14 females and 1 calf were targeted for translocation. A small trailer was available to the operation so the animals were translocated on three runs. The calf was separately transported and not allowed to get into the trailer to avoid possible injury due to trampling or being squashed by the adult animals.

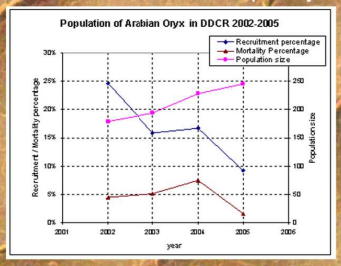
Animals were translocated to their pre-release boma in a site chosen in the north of DDCR. Animals stayed in this boma for about a week, provided with the usual diet of hay and pellets. Water was also provided through a trough. After a period of a week, gates were open for animals to wander freely in DDCR.

Oryx started wandering for large distances during the first week after the release. Six individuals were spotted at a distance of 17 Km away from the release site. Later, animals splitted into smaller groups. Currently only 10 animals of this lot seem to keep constant company of each other while others are in smaller changing groups.

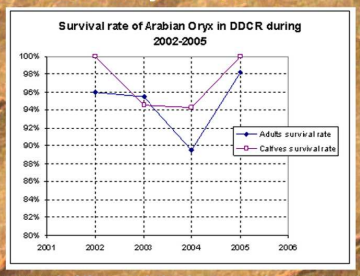
In the second translocation that took place in April 2005 a group of 40 oryx were moved out of AMR and into DDCR in a site of a natural Ghaf (Procopis cineraria) trees forest. Animal started wandering around the site but tended to get back again to the release site. On long term these animal inhabited the Ghaf forest as it provided generous amount of shade through the day and good forage in the near-by vegetation. Calving was observed to occur after the translocation in both groups indicating good adaptability and potential establishment of the population.

Population Parameters:

The population has been monitored since 2002. Population size was estimated using direct total count drives. The current population comprises 241 Oryx which represents 200% growth over 6 years since the first release. This means that the population has been experiencing an estimated rate of 26.8% of annual increase during the period 2002 to 2005 assuming linear growth. Recruitment and mortality was also assessed by counting newly born calves on weekly basis and also all deaths. There was a considerable decrease in annual recruitment during 2005 where it dropped below 10%. Annual Mortality was under 5% most of the time during the period 2002 to 2005 except for 2004 where a slight increase of annual mortality that scored 7.4%.Currently the population is maintaining normal structure and sex ratios. Average sex ratios for males, females and juveniles obtained from total counts during 2005 are 40.07%: 46.66% : 13.27% respectively.



Survival rates reported were satisfactory. Mean adult survival rate of 94.80% is recorded through the period 2002-2005, with a maximum of 98.21% during 2005 and the lowest was 89.52% during 2004. Calves' survival rate during their first year was higher scoring a mean of 97.22%. The lowest calves' survival rate was also recorded during 2004 as 94.29%.



The future trend of the population is expected to continue increasing but it is still uncertain whether it will maintain the current rate or will it go to lower rates. It is noticed that recruiting percentage is decreasing with the increasing population size, suggesting that there is some density induced effect. It is premature to make such conclusion but it is potentially that growing numbers of younger males are in strong competition with older established ones who control available females and thus depriving the young males from the chance to reproduce thus future translocations to occur correspondingly.

The reintroduced oryx population in DDCR seems to be very valuable as a source of knowledge towards the survival of the species. The DDCR population seems to follow different dynamics compared to those of Mahzzat and Uruq Bani Marrid (UBM) of Saudia Arabia. The population of UBM suffered a decline that started in 2000 and continued to prevail until 2004. The population decreased from about 220 and down to less than 150. This decline is attributed to higher mortality rates as response to environmental stress of unfavorable conditions (Chassot, et al 2005). Also, in Mahazzat As' sayed a simulation study conducted by Treydte e. al. showed that the optimum strategy for species survival should involve culling all individuals above 70% of the carrying capacity of the reserve. The DDCR population have reached numbers that are similar to those in Mahazzat and UBM but yet still on the increasing side of the graph and current indicators shows that there is a potential of this increase to continue. This suggests that there are differences in the prevailing conditions in different sites that control the population dynamics.

Although DDCR is much smaller in surface area compared to UBM and Mahazzat, it provides more resources to accommodate the oryx population. Vegetation rehabilitation program is running side by side with the oryx reintroduction. More than 6000 indigenous trees were planted in various parts of the reserves during 1999 which now provides much of the necessary resources of food and shade that are crucial to oryx well being and survival.

Thus DDCR re-introduction is unique compared to other re-introduction projects carried out previously in two aspects. First, the initially introduced herds are relatively larger in number compared to those initially introduced in Mahazat Assayed (17 in 1989), Uruq Bani Ma'arid (17 in 1997) or in Yalooni in Oman. Second, the parallel habitat rehabilitation going ad jointly with the reintroduction gives wider safety margin for the species survival and extends the carrying capacity towards the levels that are sustained by 4 or 5 folds the surface area of the reserve.

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