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More case studies from around the globe
Edited by Pritpal S. Soorae

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Re-introduction of scimitar-horned oryx to Dghoumes National Park, Tunisia

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Introduction

Scimitar-horned oryx (*Oryx dammah*) once ranged over large tracts of north Africa, occupying arid steppe and wooded grasslands in the periphery of the Sahara desert. Once thought occur in large numbers, the species declined rapidly in recent history due to over-exploitation, exacerbated by habitat fragmentation and competition with domestic livestock. The scimitar-horned oryx is now thought to be Extinct in the Wild (IUCN Red List), is listed in Appendix 1 of the Convention on Migratory Species (CMS), and Appendix I of Convention on the International Trade of Endangered Species (CITES). Historically, scimitar-horned oryx occurred across Tunisia's southern steppes. While persisting in the more remote parts of its range elsewhere in North Africa until the 1980s and possibly early 1990s, the species had disappeared in Tunisia by 1910 due to over-hunting. However, during the last 25 years, scimitar-horned oryx have been returned to four protected areas in Tunisia, including this latest initiative in Dghoumes National Park. Created in 1995, the park is located close to the oasis town of Tozeur on the northern side of a large salt pan, the Chott El Jerid.

Scimitar-horned oryx (*Oryx dammah*)

Goals

- Goal 1: Restoration of previously degraded habitat.
- Goal 2: Create a founder population of scimitar-horned oryx in Dghoumes National Park.
- Goal 3: Establish long-term monitoring of oryx and the habitat.

Success Indicators

- Indicator 1: Increases in biomass, botanical and structural diversity.

- Indicator 2: Oryx population established and growing.
- Indicator 3: Oryx remain in good health.
- Indicator 4: Locally collected biological and environmental data maintained and informing management decisions.

Rangers monitoring released scimitar horned oryx

Project Summary

Although extinct in the wild, scimitar-horned oryx are abundant in captivity. There is a well managed International Studbook (Gilbert, 2010) and regional cooperative breeding programs which have provided source animals for previous releases in Tunisia. Hence, the project at Dghoumes National Park was able to draw on locally born animals from Bou Hedma National Park (originally founded with oryx from the UK) with genetic augmentation using animals specially selected from Europe and the USA. The background and process of re-introducing scimitar-horned oryx to Dghoumes National Park was previously described in detail by Woodfine *et al*. (2009), and is summarised below. Tunisia has long established legal, strategic and institutional frameworks to support the re-introduction and protection of scimitar-horned oryx. This initiative was therefore undertaken as part of a national plan for the restoration of Sahelo-Saharan antelopes and their habitats, and contributed to the country's national biodiversity strategy. It was led by the Générale des Forêts (DGF), the statutory authority responsible for the management of reserves and national parks. Dghoumes National Park is situated within historic range of the scimitar-horned oryx, with habitat typical of sub-desertic continental steppe. Previously overgrazed by domestic livestock, a process of vegetation restoration was carried out for a decade prior to the release of oryx using a range of techniques including protection, scarification to create germination sites, and the planting of native trees and shrubs. Recovery of vegetation was monitored to ensure the habitat was in favourable condition prior to the release of oryx.

Two operations were carried out to bring oryx to Dghoumes National Park. An initial group of eight animals was captured and translocated from Bou Hedma National Park, facilitated by the Convention on Migratory Species (CMS). A second group comprising nine animals arrived from the USA and Europe in an international operation implemented by a joint team representing the European Endangered Species Program (EEP) and the Species Survival Plan (SSP). Animal selection was informed by the International Studbook (Gilbert, 2010), and genetic studies (Iyengar *et al*., 2007). Veterinary health screening was undertaken in accordance with Tunisia's statutory requirements, guidelines for best practice,

and informed by previous experience. Reception and pre-release enclosures were constructed to facilitate quarantine and acclimatization of oryx prior to their release into the park. Husbandry of the animals during this phase followed established guidelines (Gilbert & Woodfine, 2003).

Training and equipment were provided for local personnel to establish a routine monitoring programme based on daily observations of the oryx. Records were maintained of social structure, movement patterns, and diet selection and use water resources, together with significant life history events (births & deaths). Body scores were also used to evaluate changes in condition of the oryx over time. Since their release in 2007, the population has been in a rapid growth phase. Both translocated and imported females conceived soon after arrival with all giving birth within a year. By October 2009, the number of oryx born in the park exceeded the number of founders and by April 2011 the population surpassed 50 animals. The population performance and high calf survivorship to date suggests that the oryx are not currently affected by predation or limited by the wider environment. The oryx have formed stable social systems, are exploiting a wide range of food plants, seek water during the dry hot season, and body scores indicate that animals remain in generally excellent health with minor seasonal variations in their condition.

Major difficulties faced

- Although scimitar-horned oryx are plentiful in captivity, selection of suitable individuals to ensure genetic diversity and low inbreeding coefficients of founder stock means acquiring animals that are geographically dispersed. Transporting oryx from the USA and Europe proved to be administratively and logistically complex, and expensive.
- International restrictions on livestock movements due to outbreaks of foot & mouth disease and bluetongue delayed the export of oryx, and could have threatened the entire operation.

Major lessons learned

- Investment of time into planning and preparation including pre-feasibility studies and site assessments proved critical for anticipating logistical and technical requirements of the project, both internationally and locally.
- Well designed animal management infrastructure, including inter-connected reception enclosures were important for managing oryx during quarantine and acclimatization phases, and were particularly valuable for socialization of imported animals. Social bonds formed during this period lasted beyond the release phase with an unintended benefit that breeding was not dominated by a single male in the early stages of the project.
- Use of highly visible ear tags was critical for monitoring individual oryx at distance. Some animals arrived on site with small black or white ear tags or ear notches that were easily overlooked amongst mingling animals and copious ear-twitching. Large numbered yellow, blue or red tags proved the easiest to see and made monitoring efforts more efficient.
- Ongoing monitoring has been invaluable for improving understanding of the social behavior and ecology of a species that was little studied before its

disappearance in the wild. This in turn has provided both novel and important information to support management decisions, and planning new projects.

Success of project

Highly Successful	**Successful**	Partially Successful	Failure
	√		

Reason(s) for success/failure:

- International cooperation along with national & local support for the project was critical for fund raising and ensuring the requisite breadth of expertise was available. Transfer of skills and knowledge to the local team ensured appropriate ongoing monitoring and management.
- Vegetation responded positively to long term restoration measures, providing abundant grazing opportunities for oryx and other herbivores.
- A genetically diverse founder population of oryx was established.
- Rapid population growth occurred during the first five years in line with modeling expectations.
- Long term success is dependent on the implementation of a plan to maintain oryx below carrying capacity in Dghoumes National Park, and create an integrated meta-population management strategy for the species across Tunisia.

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