

The reintroduction of scimitar-horned oryx *Oryx dammah* to Dghoumes National Park, Tunisia

Report to members of the European Endangered Species Programme for scimitar-horned oryx



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Context and Acknowledgements

The reintroduction of scimitar-horned oryx to Dghoumes National Park (NP) is a collaborative initiative undertaken by the Direction G n rales des For ts (Minist re de l'Agriculture et des Ressources Hydrauliques, Tunisie), the European Endangered Species Programme (Marwell Preservation Trust, UK) and the Species Survival Plan (Saint Louis Zoo, USA). It was carried out in accordance with Tunisia's national strategy for the conservation of desert antelope and under the auspices of the Convention on Migratory Species (CMS) Action Plan for the Restoration and Conservation of Sahelo-Saharan antelope.

This truly international effort was possible because of the generous contributions of over 50 institutions supporting the release of oryx in Dghoumes NP and a simultaneous initiative to reintroduce addax to the Grand Erg Oriental via Djebil National Park.

Creating a founder group of oryx at Dghoumes NP involved the translocation of animals from a previously established population in the Bou Hedma National Park and genetic augmentation with stock selected from the EEP & SSP. The translocation operation was sponsored by the CMS. The subsequent transport of animals from the USA and Europe was organised jointly between the oryx and addax EEP and SSP.

Oryx, crates & transport costs were kindly donated by Fota Wildlife Park (Ireland), Le Pal (France), The Wilds (USA), Kansas City Zoo (USA), National Zoological Park Conservation Research Centre (USA), Bamberger Ranch (USA) and Fossil Rim (USA). San Diego Zoo played an important and pivotal role in the collection, husbandry and shipment of US animals. Additional project support was generously provided through the EEP, SSP or via the Sahara Conservation Fund.

Donors

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Dublin Zoo, Ireland	Sahara Conservation Fund
Fota Wildlife Park, Ireland	Saint Louis Zoo, USA
Fonds Franais pour l'Environnement Mondial, France	Saint Louis Zoo Docents, USA
Fossil Rim Wildlife Center, USA	San Antonio Zoo, USA
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Lisbon Zoo, Portugal	Wildlife World Zoo, USA
Longleat Safari Park, UK	Wilhelma, Stuttgart, Germany
Marwell Preservation Trust, UK	Zoo Hannover, Germany
	Zoo and Chateau Zl�n-Lešn�, Czech Republic
	Zoological Society of London, UK



Introduction and background

Status of scimitar-horned oryx

The scimitar-horned oryx is listed as extinct in the wild by the IUCN (IUCN, 2004) but the species is well represented in zoos, safari parks, ranches and private holdings with approximately 8-9,000 oryx in captive institutions around the world. A number of studbooks exist for the species including an international studbook, but there are only three coordinated captive breeding programmes: the European Endangered species Programme (EEP), the North American Species Survival Plan (SSP) and the Australasian Species Management Program (ASMP).

Tunisia

Tunisia has diversity of habitats ranging from the Mediterranean coastline and mountain ranges to arid lands and desert. These habitats support a variety of wildlife, but are under increasing threat from pollution, urbanisation and desertification (McGuinness, 2002), and some of the remaining mammal species are threatened with over-exploitation.

Despite these threats, concerted efforts are being made to protect native wildlife and to restore aridland habitats, including fauna and flora within their former range. A network of national parks and reserves has been established and laws against hunting have recently been strengthened. As a participant in the Convention on Migratory Species (CMS) Action Plan for the Conservation and Restoration of Sahelo-Saharan Antelopes (Beudels-Jamar *et al.*, 2003), Tunisia has expressed a commitment to re-establish scimitar-horned oryx and has developed a national strategy to achieve this (DGF, 2001; Woodfine & Engel 2004). This strategy involves the establishment of up to four sub-populations of oryx in fenced protected areas, each several thousand hectares in size. The herds will be managed as a meta-population with translocation of animals between each area (DGF, 2001; Wakefield & Princée, 2003; Correll *et al.*, 2004). Once viable populations have been established, the long-term vision is to remove fences in appropriate areas to allow true migratory herds to be reintroduced (DGF, 2001; Correll *et al.*, 2004; Woodfine & Engel, 2004).

Releases of captive-bred scimitar-horned have been undertaken in four fenced parks and reserves in Tunisia. The first project to re-establish oryx in

Tunisia took place in 1985 when 10 oryx were sent from British zoos to Bou Hedma NP. This was followed by a second project in 1999 which saw the re-establishment of oryx populations in Sidi Toui NP and Oued Dekouk Nature Reserve (NR), with an additional male sent to Bou Hedma NP to genetically augment the oryx population there. In February/March 2007 eight scimitar-horned oryx were translocated from Bou Hedma NP to Dghoumes NP to establish a new population of scimitar-horned oryx in the Park. The current project involves the genetic augmentation of the oryx herd in Dghoumes NP with unrelated scimitar-horned oryx from EEP and SSP institutions.

Dghoumes National Park

Dghoumes National Park is an 8,000 ha fenced protected area close to Tozeur, designated entirely for wildlife conservation. The fencing was erected between 1995 and 1997, and since then activities have focused on habitat regeneration, the protection of native wildlife and the reintroduction of dorcas gazelle *Gazella dorcas* and scimitar-horned oryx.



Dghoumes National Park, Tunisia

The park consists of three main habitat types; the Bebirita Mountains (3,000 ha), the Chott el Jerid (a seasonal salt lake) (1,200 ha) and the arid zone or chareb (3800 ha). In addition to reintroduced populations of dorcas gazelle and scimitar-horned oryx, other native wildlife can be seen including barbary sheep *Ammotragus lervia*, Cuvier's gazelle *Gazella cuvieri*, porcupine *Hystrix cristata*, jackal *Canis sp.*, red fox *Vulpes vulpes*, wild boar *Sus scrofa*, genet *Genetta genetta*, gundi *Ctenodactylus sp.*, and a variety of birdlife.

The park has a main gate house which houses the conservateur and his team of eco-guards. There

are further guard houses at the top of the Bebirita Mountains to protect the wildlife in the NP. An eco-museum has been built close to the main gate house for the purpose of raising awareness and developing education services; however at present the museum needs to be furnished with interpretation and education materials.



The results of habitat restoration in Dghoumes NP

The project

Aims

- 1) To support the establishment of a population of scimitar-horned oryx in Dghoumes National Park, in accordance with the Tunisian strategy for the reintroduction and meta-population management of desert antelope (DGF, 2001).
- 2) To genetically augment the existing population of scimitar-horned oryx in Tunisia.

Animal Selection

The oryx were selected on the grounds of genetic and demographic criteria. The animals were unrelated to any in the existing sub-populations in Tunisia and would therefore fulfil the requirement of a genetic augmentation.



Female oryx from Fossil Rim and Bamberger Ranch in an acclimatisation pen

Transport, quarantine, and acclimatisation

In December 2007 two EEP and seven SSP oryx were transported from their respective institutions to Luxembourg before being shipped to Tozeur in Tunisia on the 7th of December. From there, the oryx were loaded onto two trucks and driven the short distance to Dghoumes NP. Inspections of the animals in the crates established that they were all alive and well, and not suffering from any injuries. The following morning the oryx were released into the acclimatisation pens where they were separated into three social groups; (a harem group of four females and one adult male, a bachelor group of three young males, and a single adult male); provided with food and water and monitored for any signs of disease, injury or distress.



Arrival of oryx and addax at Tozeur airport, Tunisia

The oryx were held in the acclimatisation pens for 46 days, not only allowing them to adapt to the local conditions, but also to facilitate close veterinary and health monitoring. The animals initially lost some weight, but this was remedied by provisioning them with more forage. On the 23rd of January the harem and bachelor groups were released from the acclimatisation pens into a 6 ha pre-release enclosure to allow them access to a greater range of potential food plants, benefit from increased exercise and provide them with the opportunity to mix as a herd before they were released into the park. The remaining solitary adult male was given additional space through access to adjacent reception pens, but was not introduced to the rest of the herd at that time to avoid the risk of overt aggression. It was decided that this male would be given access to the 6ha pre-release enclosure and follow the same acclimatisation process after the release of the herd into the park.



Bachelor herd in the acclimatisation pens

The oryx herd were maintained in the pre-release enclosure for 20 days, during which time they had access to shade, a supply of water and supplementary feed. They were released from the pre-release enclosure to the park mid-February allowing plenty of time for the oryx to develop spatial awareness and to learn about grazing and water resources and shade before the hot season began. The solitary male was released into the park mid-March.



Oryx in the pre-release enclosure

Post-release monitoring and management

The oryx are being monitored on a daily basis by the conservateur and his team of eco-guards yielding good information on social structure and movement patterns of the oryx in the park. Water is provided on a daily basis, and forage is provided when the oryx visit the watering point by the acclimatisation pens. The project has provided monitoring equipment (e.g. GPS units, binoculars, telescope, field guides) to the conservateur and his team, as well basic equipment such as camp beds,

solar powered lanterns, wind-up torches, first aid and snake bite kits.

The daily monitoring is supplemented by visits from the project veterinarian, Gian Lorenzo D'Alterio, and Dr Tim Woodfine from Marwell Preservation Trust to ensure that the animals are in good health, that training is provided to the eco-guards and additional data can be collected. To date, visits were made in January and October 2008.



The conservateur, Abdelkader Chetoui, monitoring oryx in Dghoumes NP

Current status

The release of the nine EEP/SSP oryx into the park initially led to the formation of a single herd as the EEP/SSP animals joined the oryx that had previously been transported from Bou Hedma NP in February/March 2007. Since then the herd has separated out into smaller groups, and the birth of 13 calves has resulted in the population growing from 17 to 29 animals. The female oryx that originated from Bou Hedma NP are now raising their second round of calves, and the EEP/SSP females are producing calves following conception in the acclimatisation pens. There has been only one death, that of an adult male from Bou Hedma NP, due to illness and injuries sustained in fighting.

The 29 oryx have separated into three social groups: 1) a mixed sex herd of 18 animals comprising a dominant male, together with females, their offspring of varying ages and unrelated males; 2) a small harem group of seven comprising a male with four adult females and two calves; and 3) a smaller group of three males and one female.

Some weight loss was apparent amongst the oryx following the hot dry summer months, particularly for lactating females. However, this natural

variation is expected and overall the animals have retained good body and coat condition. There are no signs of ill health or injury, and the faecal samples that were collected and examined showed no signs of parasite infestation.



Oryx in Dghoumes NP

Summary

The EEP/SSP oryx have now been at Dghoumes NP for a year, and survived their first hot dry season in good health. There were no problems in releasing the zoo animals into a park where a small population existed, and the two groups integrated well. The population is growing fast due to good health and continued reproduction. The oryx are being monitored on a daily basis by the eco-guards and periodically by a veterinarian and an ecologist. Good basic data is being collected on demography, social status and movement patterns within the park. The project aim of the first phase has been achieved and the scimitar-horned oryx population in Tunisia has been genetically enhanced by the introduction of unrelated animals from Europe and North America.



Oryx project team, conservateur and eco-guards at Dghoumes NP



A guard post at the top of the Bebirita mountains

References

- IUCN (2004): 2004 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Downloaded on **04 April 2006**.
- McGuinness, J. (2002): Tunisia handbook. Footprint handbooks limited. Bristol, UK.
- Beudels-Jamar, R.C., Devillers, P. Lafontaine, R.-M. (2003): Report on the status and perspectives of a species *Addax nasomaculatus*. In: *Convention on migratory species: status reports, Sahelo-Saharan antelopes. Working document*. CMS.
- DGF (2001): Stratégie nationale Tunisienne pour la conservation et la Restauration des antilopes Sahélo-Sahariennes et de leurs habitats. Ministère de l'Agriculture, Direction Générale des Forêts, Direction de la Conservation des Forêts.
- Wakefield, S. & Princée, F. (2003): Strategy for the reintroduction of scimitar-horned oryx *Oryx dammah* to Tunisia. Marwell Preservation Trust. Unpublished Report.
- Correll, T., Engel, H., Gilbert, T., Houston, B., Spevak, E., Wakefield, S. & Woodfine, T. (2004): Recommendations for the redistribution and augmentation of addax *Addax nasomaculatus* and scimitar-horned oryx *Oryx dammah* in Tunisia: Results of a technical workshop held in Hanover, Germany, in response to a request from the Direction Générale des Forêts. Unpublished report.
- Woodfine, T. & Engel, H. (2004). Reintroduction and Meta-population Management of Addax and Oryx in Tunisia. In: S. Monfort & T. Correll (eds). *Proceedings of the 5th Annual SSIG Meeting, Souss, Tunisia*.

The Next Stage

The first stage of the project to establish a population of scimitar-horned oryx in Dghoumes NP has now been completed, but there is still much to do to ensure the long-term persistence of the species in the park. The second stage of the project will build upon the progress made so far and will focus on further genetic augmentation of the oryx population, increase and extend the monitoring and research at Dghoumes NP, transfer essential skills to local people and raise awareness amongst the local community. We are looking for continued financial support from the EEP and other project partners for these initiatives.

1) Genetic augmentation

The population in Dghoumes NP has a reasonable amount of genetic diversity with unrelated animals from Europe and North America augmenting the group that originated from Bou Hedma NP. However, to ensure the long-term prosperity of the population, it should be as diverse as possible, ideally representing the genetic diversity of the global population. Currently, there are five global founders which are not represented in the Tunisian population, and a further 12 global founders that have a very low allele retention in the Tunisian population. As such the second stage of the project proposes to transfer additional animals from un- and under-represented founder lineages in the EEP population to Dghoumes NP.

2) Enhanced monitoring

The current programme of post-release monitoring focuses on daily observations of demography, health and social groupings, and seasonal veterinary visits. Whilst this has yielded some good basic data, enhanced monitoring will provide a detailed insight into the behavioural and social ecology of oryx in their natural habitat as well as impacts on biodiversity. This type of monitoring will require a substantial financial investment in equipment such as satellite/radio collars for oryx and camera traps.

3) Training

The conservateur and eco-guards at Dghoumes NP have been given basic training in monitoring oryx populations, the use of monitoring equipment and animal husbandry. However, further training in these areas is needed to meet the requirements of enhanced monitoring. This stage also aims to support a Tunisian student through their post-graduate studies to provide increased capacity within Tunisia for monitoring and conserving native wildlife.

4) Community engagement

To date the project has focused on the establishment of oryx populations within the park, but stage two expands the focus to include raising awareness and education for local people and visitors. This will include equipping the eco-museum to provide interpretation for visitors and support for local people to visit the park.

If you would like to support the next stage of this project, please contact Tania Gilbert at Marwell Preservation Trust, Colden Common, Winchester, Hampshire, UK, SO21 1JH. Telephone: +44 (0) 1962 777934 or E-mail: taniag@marwell.org.uk .