



# Global Re-introduction Perspectives: 2013

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



IUCN/SSC Re-introduction Specialist Group (RSG)





The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN or any of the funding organizations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views expressed in this publication do not necessarily reflect those of IUCN.

**Published by:** IUCN/SSC Re-introduction Specialist Group & Environment Agency-ABU DHABI

**Copyright:** © 2013 International Union for Conservation of Nature and Natural Resources

**Citation:** Soorae, P. S. (ed.) (2013). *Global Re-introduction Perspectives: 2013. Further case studies from around the globe*. Gland, Switzerland: IUCN/SSC Re-introduction Specialist Group and Abu Dhabi, UAE: Environment Agency-Abu Dhabi. xiv + 282 pp.

**ISBN:** 978-2-8317-1633-6

**Cover photo:** Clockwise starting from top-left:

- i. Fen Raft Spider, UK © Helen Smith
- ii. *Manglietia longipedunculata* © Late Prof. Qingwen Zeng
- iii. European Tree Frog, Latvia © Andris Eglitis
- iv. Red Wolf © USA John Froschauer/PDZA
- v. Hungarian Meadow Viper © Tamás Péchy
- vi. Westslope Cutthroat Trout, USA © Carter Kruse, Turner Enterprises, Inc./Turner Endangered Species Fund
- vii. Oriental White Stork, Japan © Yoko Mitsuhashi

**Cover design & layout by:** Pritpal S. Soorae, IUCN/SSC Re-introduction Specialist Group

**Produced by:** IUCN/SSC Re-introduction Specialist Group & Environment Agency-ABU DHABI

**Download at:** [www.iucnsscrg.org](http://www.iucnsscrg.org) / [www.iucn.org](http://www.iucn.org)

## Re-introduction of Arabian gazelles in a fenced Protected Area in central Saudi Arabia

Moayyad Sher Shah, M. Zafar-ul Islam\* & Ahmed Boug

National Wildlife Research Center, Taif, Saudi Arabia

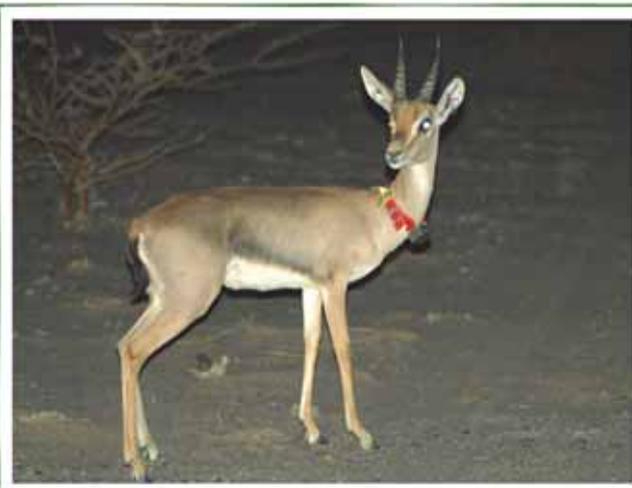
\* - [mzafarul.islam@gmail.com](mailto:mzafarul.islam@gmail.com)

### Introduction

Historically, the Arabian gazelle (*Gazella arabica*) locally known as *Idmi* occurred across most of the Arabian Peninsula from the Araba Valley in southern Israel, along the Hejaz and Asir Mountains in western Saudi Arabia, through Yemen, Oman and into the Emirates. In Saudi Arabia the Arabian gazelle population has been declined dramatically throughout its range since the middle of the 20<sup>th</sup> century (Habibi 1986), and the IUCN Red List (IUCN 2012) currently ranks this species as 'Vulnerable' (A2ad).

Small relict populations of Arabian gazelles used to occur in Al Khunfah and Harrat al Harrah in the north of Saudi Arabia (Wacher, 1993; Seddon *et al.*, 1997), and on the Tihama coastal plain in Wadi Hali (Islam pers. obs.) 80 km south of Al Qunfidah, while animals recorded near Al Farah (Boug *et al.*, 2012). On the Farasan Islands a strong population of about 1,000 individuals survived (Wronsky *et al.*, 2011, 2012), and in two protected areas (Ibex Reserve, Uruq Bani Ma'arid) Arabian gazelles were released from 1990 to 2007 (Islam *et al.*, 2012). Most records of natural Arabian gazelle populations in Saudi Arabia originate from the western part of the Kingdom, i.e. the Asir, Sarawat and Hejaz Mountains.

Historically Arabian gazelle used to occur in Mahazat as-Sayd Protected Area in central part of Saudi Arabia and were exterminated by anthropogenic and other pressures. Since the Arabian gazelles presence was confirmed from interviews of local people. The Strategy and Action Plan of the National Wildlife Research Center (NWRC) suggested the re-introduction of Arabian gazelle (Islam *et al.*, 2009) should occur and 40 (12 males:28 females) captive -bred animals were successfully released in 2011 & 2012. This project is particularly significant as it is one of the first successful releases for the



Arabian gazelle at night © M.Z. Islam

species in over twenty years. After many years of dedicated work to identify and conserve different species of gazelles in Saudi Arabia, it was successfully released. The release is part of the ongoing efforts in the Kingdom to conserve a variety of antelopes, an initiative that is strongly supported by the Saudi people.



Arabian gazelles release in MZT by  
H. H. Prince Bander © D. Kifle

## Goals

- Goal 1: To re-establish wild and self-sustaining populations of Arabian gazelle in Mahazat as-Sayd Protected Area in Saudi Arabia.
- Goal 2: Manage the re-introduction of the herds in the protected areas.
- Goal 3: Re-introduce the animals in suitable habitats.
- Goal 4: Study the ecology and biology of the Arabian gazelle in protected area.
- Goal 5: Balance between grazing and browsing animals in Mahazat.

## Success indicators

- Indicator 1: Healthy breeding Arabian gazelle population in Mahazat as-Sayd Protected Area.
- Indicator 2: The captive herd at KKWRC is maintained for re-introduction programs for other protected areas.
- Indicator 3: The re-introduction of Arabian gazelle in Mahazat for more than two years, which now has a breeding population and considered to be a partial success.
- Indicator 4: Productivity by wild Arabian gazelles high.
- Indicator 5: Society and government supports re-introduction and Mahazat has been suggested for national and international tourists.

## Project Summary

**Feasibility:** Arabian Gazelles were previously occurred in Mahazat area (22° 15'N - 41°40'E), which is tract of open desert steppe habitat of tropical and arid climate with gentle topography in southwest of Saudi Arabia c.150 km northeast of Taif. Historically the species had been extirpated, primarily by excessive hunting. After the identification of the area as wildlife reserve it was fenced and properly protected from livestock grazing, within a few years the recovery of the vegetation increased the chances of re-introduction of several species in the reserve as compared to areas outside the Reserve, which was overgrazed and

disturbed. The local community was taken in confidence during the process and Saudi Wildlife Authority got full support both from civil society and the Government for the re-introduction of native wildlife. Arabian gazelles were obtained from King Khalid Wildlife Research Center (KKWRC). All the translocated gazelles were born in captivity at KKWRC.

**Implementation:** Arabian gazelles were captured just before dark and put in individual crates constructed of plywood and measuring 1.0 m x 0.36 m x 0.90 m. Crates could be opened from both ends and had 30 - 40 ventilation holes of 1 cm diameter. Animals were transported the 800 km to Mahazat at night by truck. Upon arrival at the Reserve the gazelles were placed in a quarantine enclosure (500 m x 500 m) and features to those at the KKWRC. Shade, food and water were provided in enclosure. Between March 2011 and January 2012, two groups of animals were released from the pre-release enclosure into wild when the vegetation condition was favorable.

All animals were softly released by opening gates of pre-release enclosure and animals were allowed to leave of their own, while water and alfalfa was provided outside of the enclosure for three weeks. All animals, which were radio-tagged were monitored on daily basis by ground telemetry and at least once a week by aerial telemetry using Maule aircraft and date, time, location, activity, interaction with sand gazelles, habitat and group compositions were observed.

First Release: In 2011 the first group of 17 (4 males:13 females) Arabian gazelles was transferred from KKWRC to Mahazat on 14<sup>th</sup> March 2011 by road. Age of gazelles was between 2 - 6 years old and ranged between 3 months old calf to 10 years old female. Radio-collars were secured to each individual with tag numbers. One female died on 19<sup>th</sup> March 2011 in release pen before release. On April 8<sup>th</sup>, 2011 two female Arabian gazelles were released directly from boxes by His Highness Prince Bandar bin Saud bin Mohammed Al Saud (SWA President). Remaining 14 gazelles (4 males:10 females) kept in pre-release enclosure were released softly by opening gate of enclosure.

2<sup>nd</sup> Release: In 2012 the second group of 23 (8 males:15 females) gazelles was transferred from KKWRC to Mahazat on 12<sup>th</sup> February 2012. Age structure of this group received is mostly 2 - 4 years old and ranged between 1 to 5 years old animals. One female gazelle was recorded dead in the pre-release enclosure before release on 21<sup>st</sup> February 2012. This group of 22 Arabian gazelles was softly released by just opening the enclosure gate on 6<sup>th</sup> March 2012.

All animals were tested for tuberculosis, vaccinated against rabies, foot and mouth disease, rinderpest, and pasteurellosis, marked with either eartags, marker collars, or radio transmitters, and placed in quarantine pens for a few months and soft released by opening the gate of the enclosure.

**Post-release monitoring:** In summer of 2011 and 2012, when the vegetation mostly dried off, a total of eight Arabian gazelles were recorded dead, mostly just after the release from the first release between May and November 2011. Five

gazelles (1 male:4 females) went missing due to radio-collar failure and one radio collar fell of one female. These animals were not recorded again till date.

Only one female was found dead on 31<sup>st</sup> March 2012 among the second released group of 22 animals. Mortalities were controlled by further improving the release method, by releasing them in winter months not as 2011 and also by



Arabian gazelles in Mahazat © M. Z. Islam

decreasing stress on animals during the second release. Another factor for successful release was the fact that the Reserve received good rainfall and that made the reserve green. Post release dispersal of Arabian gazelles have been recorded from the intensive monitoring programs. After the release the productivity of wild gazelles was high and after one year of release, the gazelles started breeding. Five radio-tagged females gave birth to one calf after one year of release and other females would produce calves too.

Breeding records of the gazelles: The first wild born Arabian gazelle calf was recorded in Mahazat on 28<sup>th</sup> August 2012 near the fence. This calf was almost one month old when recorded with the group. Three other females delivered one each by the end of September 2012. The offspring show more adaptability to the wild than to their captive-bred parents and other females were also recorded pregnant. The present population of Arabian gazelle in Mahazat Reserve is between 30 - 35 (exactly 29: 11 males:14 females:4 juveniles) animals are monitored on a regular basis. Studies related to its habitat use, feeding ecology, range and space use, and group composition are been carried out in Mahazat.

### Major difficulties faced

- Maintain long-term regular monitoring.
- Lack of skills for mass capture techniques for Arabian gazelles.
- No study on the genetic diversity of gazelle in released sites has been done recently.

### Major lessons learned

- When wide-ranging species are confined to restricted areas, even if such areas are large, it is essential that an effective population management plan is in place BEFORE any re-introduction is carried out and that the plan is properly implemented. If this is not done, large-scale mortalities will occur.

# Mammals

- Prior to any translocation, range conditions in the release area have to be improved and the area protected from livestock exploitation. Once pasture conditions show adequate signs of improvement and the site is adequately protected, re-introduction of the animals can be contemplated.
- The time of release should coincide with suitable vegetation conditions.
- Keeping the animals in pre-release enclosures within the re-introduction site to get them acclimatized to the natural environment and provide minimal amount of food and water.
- Regulate tourism in re-introduction areas as this can lead to increased habitat degradation.
- A public-awareness program should in place to inform citizens of the biological and historic significance of the Arabian gazelle in the society.

## Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

### Reason(s) for success/failure:

- The Arabian gazelle was locally extinct in the south-western Saudi Arabia and now we have breeding populations through the captive-breeding and re-introduction programs.
- The population of Arabian gazelle withstood the drought without further supplemental re-introduction support.

## References

Boug, A., Islam, M. Z., Shehry, A. & Wronski, T. (2012) Camera trapping confirms persistence of Arabian Gazelles (*Gazella arabica*) in the Asir Mountains, Saudi Arabia. *Zoology in Middle East* 57: 3-10.

Haque, M. N. & Smith, T. (1996) Re-introduction of Arabian Sand Gazelle *Gazella subgutturosa marica* in Saudi Arabia. *Biological Conservation* 76: 203-207.

Islam, M. Z. Watcher, T., Boug, A. & Wronski, T. (2011) Population development of re-introduced Arabian Gazelle in the western Empty Quarter (Uruq Bani Ma'arid Protected Area), Saudi Arabia. *IUCN Re-introduction Book 3*: 180-184.

Islam, M. Z.; Knutson, C. & Boug, A. (2010b) Strategy and Action Plan to Reduce the Risk of Mass Mortalities of Reintroduced ungulates in the Mahazat as-Sayd Protected Area in Saudi Arabia. *GNUSLETTER, IUCN*. Vol 28 (2): 9-15.

Islam, M.Z., K. Ismail & A. Boug (2010a) Catastrophic die-off of globally threatened Arabian Oryx and Sand Gazelle in the fenced protected area of the arid central Saudi Arabia. *Journal of Threatened Taxa* 2(2): 677-684.

Ostrowski, S. & Williams, J. B. (2006) Heterothermy of free-living Arabian sand gazelles (*Gazella subgutturosa marica*) in a desert environment. *J Exp Biol* 209: 1421-1429.

Seddon, P. J., Y. van Heezik & I. A. Nader (1997) Mammals of the Harrat al-Harrah protected area, Saudi Arabia - *Zoology in the Middle East* 14: 37–46.

Wacher, T. J. (1993) Gazelle and camel surveys: Harrat Al Harrah and Al Khunfah Protected Areas, Saudi Arabia. Unpublished Report, King Khalid Wildlife Research Centre, Thumamah, Saudi Arabia.