

Captive breeding and conservation

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Abstract. Captive breeding is one of a myriad of tools at the disposal of conservationists. It can fulfil specific tasks that should be an integral part of the overall conservation action plan for a species. Captive breeding and other types of intensive management of individuals and populations often become necessary when human caused threats (habitat destruction, exploitation etc.) have caused the population of a species to become so small and fragmented that even if the human caused threats could be magically reversed, the species would still have a high probability of extinction purely due to random demographic and genetic events, environmental variation and catastrophes; or when the continuing, unchecked decline in population size indicates that this will soon become the case. Provided sufficient knowledge on the biology and husbandry of the species exists, breeding individuals in the relative safety of captivity, under expert care and sound management may provide an insurance against extinction, and/or a stock for reintroduction or reinforcement efforts, and/or opportunities for education, raising of awareness, scientific and husbandry research and other contributions to conservation. Important challenges include recognising when “the time is right”, identifying the precise role of the captive breeding efforts within the overall conservation action plan, setting realistic targets in terms of required time spans, population sizes, founder numbers, resources etc., ensuring sound management and cooperation and developing much needed new technical methods and tools. The above is illustrated with examples from the Arabian Peninsula.

Key words. Ex situ, population targets, genetic management.

Introduction

Captive breeding represents one of a myriad of tools conservation biologists have at their disposal to help prevent the extinction of a species, subspecies or population. The region of the Arabian Peninsula is home to a number of world famous captive breeding and reintroduction initiatives, e.g. the Arabian Oryx *Oryx leucoryx* (ABU JAFAR & HAYS-SHAHIN 1988, OSTROWSKI et al. 1998, SPALTON et al. 1999, AL QUARQAZ & KIWAN 2007). Furthermore, the annual Conservation Workshops hosted by Sharjah, UAE, between 2000 and 2009 (AL MIDFA et al. 2011) have been instrumental in the evaluation of potential current and future captive breeding needs in the region and in the implementation of new captive breeding initiatives. Using examples from the region, this paper will aim to illustrate a number of roles that captive breeding can fulfil in different stages of the extinction process, highlight a few important principles that are essential to success and point to a new challenge for the future.

The extinction process and captive breeding

The extinction process can roughly be divided in two phases (GILPIN & SOULÉ 1986). During the first phase, deterministic and often human caused threats such as habitat degradation and loss, direct exploitation of the species, competition from exotic and domestic species, killing