Global Re-introduction Perspectives: 2016

Case-studies from around the globe

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IUCN/SSC Re-introduction Specialist Group (RSG)

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Cover photo: Clockwise starting from top-left:
i. Bolson's tortoise, USA @ Turner Endangered Species Fund
ii. Wetapunga, New Zealand @ Richard Gibson
iii. Morelos minnow, Mexico @ Topiltzin Contreras-MacBeath
iv. *Silene cambessedesii*, Spain @ Emilio Laguna
v. Tasmanian Devil, Maria Island, Tasmania @Simon DeSalis
vi. Agile frog, Jersey @ States of Jersey Department of the Environment

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Re-introduction of the African lion from a captive origin: Zambia & Zimbabwe

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Introduction

The African lion (*Panthera leo*) is found in most countries of sub-Saharan Africa, although numbers have declined in recent times. Lion numbers in Africa were estimated at 200,000 in 1975 (Myers, 1975). Estimates published at the end of 2012 by a team at the Nicholas School of the Environment suggested that between 32,000 and 35,000 lions remain in Africa and that there is "*abundant evidence of widespread decline and local extinctions*" even in protected areas (Riggio, 2013). The African Lion is currently listed as "Vulnerable" on the IUCN Red List based on "A species population reduction of approximately 30% is suspected over the past two decades (= approximately three lion generations). The causes of this reduction (primarily indiscriminate killing in defense of life and livestock, coupled with prey base depletion: Bauer 2008), are unlikely to have ceased." (Bauer, Nowell & Packer, 2012). Loss of habitat due to human population growth is also a significant cause of population loss.

Goals

- Goal 1: Release of prides of captive bred lions into fenced-wild areas.
- Goal 2: Release of second generation lions into wild areas.
- Goal 3: Mitigation of reasons for the original loss of lions in proposed release areas.

African lion male

Success Indicators

- Indicator 1: Creation of socially stable and self-sustaining captive-bred lion prides in fenced wild areas.
- Indicator 2: Raising of second generation cubs to sub-adulthood by the captive -bred lions.
- Indicator 3: Survival of released second generation cubs.
- Indicator 4: Integration of released second generation cubs into local lion populations, including inter-breeding with native lions.
- Indicator 5: Identification of reasons for the loss of lions in proposed release areas, and success in mitigating those reasons through targeted programs.

Project Summary

Feasibility: *In-situ* conservation programs must continue to be the mainstay of efforts to protect habitat for lions to survive. However, there is a concern with a lack of empirical evidence that current conservation solutions for lions are, or can, work, in the long term. Given the speed of decline in lion populations, and the IUCN's Red List classification assessment that "… the reduction or its causes may not have ceased OR may not be understood OR may not be reversible", it is suggested that it is necessary to ensure that there is a back-up plan to complement *in-situ* efforts.

The IUCN technical guidelines for *ex-situ* management are based on fulfillment of one or more of the following Red List criteria: "When the taxa/population is prone to effects of human activities or stochastic events or When the taxa/population is likely to become Critically Endangered, Extinct in the Wild, or Extinct in a very short time. Additional criteria may need to be considered in some cases where taxa or populations of cultural importance, and significant economic or scientific importance, are threatened" (IUCN, 2002). It is argued that for the African lion, both of these criteria apply (Abell, Kokés & Youldon, 2013).

Implementation: During the initial stages captive-bred lions were given the opportunity to develop their natural instincts on human-led walks into a natural area, prior to being bonded together in prides. The first release of a pride of 2 males and 5 females into a fenced-wild area at the Dollar Block reserve in central Zimbabwe in August 2007 showed that the pride was able to feed itself, but that the social structure of the group was not stable, resulting in the death of 2 females; killed by the 2 males. It was considered that the males were too young and failed to establish dominance over the 2 females resulting in fatal fights, whilst the females of the pride were insufficiently bonded. The 2 males were removed and 3 additional females introduced. The female only pride proved to be self-sustaining and socially stable. Due to local land security problems the release site had to be moved. The female lions were placed back in captivity, adjacent to a new, older male for a period of 1 year whilst the site was moved to a new location in Gweru, central Zimbabwe. In September 2010 the females were released into the Ngamo release site, with the male released 2 weeks later.
A second pride of 6 females was released in August 2011 into a fenced - wild area in the Dambwa Forest, Livingstone, Zambia, with a male released into the same area in December 2011.

To date the program has yet to move to the next stage of releasing the second generation cubs into the wild.

Lion family group

Post-release monitoring: Between January 2011 and February 2012, a total of 19 cubs were born to the Ngamo pride in 7 litters. Four cubs failed to thrive, whilst 10 were killed by pride members. As a result 1 adult female was removed from the release site. The remaining 5 cubs, which have never had any human contact, have been successfully raised by the released lions to sub-adulthood. A further adult female was removed from the site for treatment in June 2013 having been discovered in the site, paralyzed from a prolapsed disc. The Dambwa pride have given birth to 6 cubs in 2 litters in June 2013 and January 2014. The integration of the cubs into the pride has resulted in the expulsion of 1 adult female by the pride, leading to her removal from the site. Social network analysis has shown that both prides are now socially stable (Abell *et al.*, 2013), whilst hunting analysis shows that both prides are capable of sustaining themselves. The sub-adults within the Ngamo release area are also now capable of hunting.

Major difficulties faced

- Ensuring land security.
- Obtaining sufficient funding to build adequately sized release areas.
- Sufficiently bonding the pride prior to release to ensure social stability.
- Understanding the reasons for the killing of cubs in the Ngamo release area by pride members.

Major lessons learned

- Male lions should be mature when introduced to the females, or raised with the females from an early age to ensure social stability.
- Release site sizes need to be as large as possible, with the aim of ensuring natural predator - prey relations are possible, and that prey populations can be naturally regenerating to offset the rate of predation and therefore reduce costs.
- Ensuring cooperation from national wildlife authorities is necessary to gain the necessary permits to proceed with implementation.

Success of project

Highly Successful	Successful	**Partially Successful**	Failure
		√	

Reason(s) for success/failure:

- Insufficient funding to create appropriately large fenced-release areas.
- Insufficient evidence of the merits of *ex-situ* management for lions has been presented.

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