

SAND CAT, ONE OF THE TRULY AMAZING CATS

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One of the truly amazing cats that Al Ain Wildlife Park & Resort has in its collection, is most at home in the vast deserts of the Middle East and Northern Africa – in a habitat with summer temperatures routinely exceeding 55 degrees Centigrade and the near total absence of standing water. This hardy felid – the sand cat (*Felis margarita*) – has adapted to this harsh environment by growing thick hair on the bottom of its feet to withstand the hot sand, by learning to survive without drinking water by extracting needed moisture from its food, and by using its large ears and ultra-low frequency hearing to pick up the faintest sounds of scampering rodents and other prey when hunting at night. Sand cats, however, are sensitive to human encroachment and, although there certainly is no shortage of desert, sand cat populations appear to be diminishing throughout their natural range. Unfortunately, very little field research has been directed to wild sand cats, making it difficult to accurately assess population trends or fully understand the species' ecological needs.

In North American zoos accredited by the Association of Zoos and Aquariums (AZA), sand cats are maintained in a Species Survival Plan (SSP) designed to oversee the captive population while promoting conservation activities with wild sand cats. The SSP population consists of just 35 cats and, although carefully managed through selective breeding, the total number of animals remains too low to maintain a genetically healthy population over time. One solution to this management challenge is to link together the various regional populations housed in zoos and wildlife parks in North America, Europe and the Middle East to form a larger meta-population of nearly 160 cats. Developing an effective global management program for sand cats will depend on establishing international collaborations between these diverse geopolitical regions as well as applying scientific expertise to optimize sand cat propagation. The initial efforts at getting these countries united for sand cat conservation have been focused on connecting zoo populations in the United States (US) with those in the United Arab Emirates (UAE).

In recent research, scientists from Cincinnati Zoological Garden and the University of Illinois have been collaborating with us at the Al Ain Wildlife Park and Resort (AWPR). The AWPR breeding facility

currently houses 32 sand cats that are completely unrelated to any of the sand cats in US zoos. As an alternative to shipping live cats between countries, we are exploring the use of frozen semen and embryos, in conjunction with assisted reproductive techniques, as a means of creating genetic exchange. In September 2008, semen was collected and frozen from four male sand cats at the AWPR and 63 frozen semen straws were imported to the US.

In October 2009, in vitro fertilization (IVF) was used to produce 50 sand cat embryos; 21 of these embryos were transferred into four females at the AWPR. One female subsequently gave birth to two healthy kittens, the first ever produced by embryo transfer in this species. The remaining embryos were frozen for importation to the U.S. The plan is to transfer these frozen embryos into several sand cat females in U.S. zoos to produce kittens that will represent new bloodlines for the SSP (Species Survival Plan) population.

In June 2010, we hope to create gene flow in the opposite direction, using frozen semen from unrelated U.S. cats to produce IVF embryos and offspring in female sand cats at the AWPR. Through a combination of global captive management, assisted reproduction and in situ connectivity, these united efforts should help us to ensure the future survival of this unique desert adapted cat species.



Fig 1: Two Sand cat kittens (DOB: 13/12/09) are the first ever to be born as a result of in vitro fertilization and embryo transfer (© Al Ain Wildlife Park and Resort).