ex-situ Updates

Central Zoo Authority
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SPECIES IN FOCUS
CHEETAH

CHEETAH CONSERVATION AT GREENS ZOOLOGICAL RESCUE AND REHABILITATION CENTRE, JAMNAGAR

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The Cheetah *(Acinonyx jubatus)* is a large cat, characterized by a lightly built body stature with tawny to creamy white or pale buff fur marked with evenly spaced, solid black spots. Its slender body, with small rounded head, short snout, black tear like facial streaks, a deep chest, long thin legs and a long tail is highly adapted for speed. Cheetahs typically reach 67-94 cm at the shoulder and the head and body length is between 1.1 to 1.5 m. It is the fastest land animal, capable of running at 80 to 90 km/h, and has evolved specialized adaptations for speed.

Cheetah was first described in the 18th century and at present four subspecies are recognised, native to Africa and Iran, as per the Cat classification Task Force of the IUCN Cat Species Group. The present distribution of the Cheetah is restricted to north-western, eastern and southern Africa and central Iran. The species can survive in a variety of habitats such as Savannahs in the Serengeti, arid mountain ranges in the Sahara and hilly desert terrain.

The Cheetah, once abundant throughout its distribution range, is now threatened by habitat loss, conflict with humans, poaching and high susceptibility to diseases. In 2016, the global Cheetah population was estimated to be 7100, individuals in the wild. The species is listed as vulnerable as per the IUCN red list of threatened species. The species is also listed in Appendix I of the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Convention on the Conservation of Migratory Species of Wild Animals (CMS). The species was also depicted in art, and literature and was tamed and trained for hunting in ancient Egypt, in the Arabian Peninsula and India. The species was kept in Zoo since the early 19th century.

In Asia, Cheetahs are now confined to Iran, where the subspecies Acinonyx jubatus venaticus is estimated about 60-100 and listed as Critically Endangered. The low density of the Cheetah across their range is well evidenced and the population was fragmented also that causes the concern regarding the long term survival of the population in future.

EX-SITU POPULATION OF CHEETAHS IN INDIAN ZOOS:

There are two zoos in India that are housing Cheetah. South African Cheetah (Acinonyx jubatus jubatus) was housed at Sri Chamarajendra Zoological Gardens, Mysuru, Karnataka and Somalian Cheetah (Acinonyx jubatus soemmeringii) was housed at the Greens Zoological Rescue and Rehabilitation Centre (GZRRC), Jamnagar, Gujarat.

Sl No	Name of the Zoos	Male	Female	Unsexed	Total
1.	Sri Chamarajendra Zoological Gardens, Mysuru, Karnataka (source: cza animal inventory 2022-2023)	1	2	0	3
2.	Greens Zoological, Rescue and Rehabilitation Centre, Jamnagar, Gujarat	24	22	36	82

GZRRC FACILITIES FOR THE PLANNED CONSERVATION BREEDING OF CHEETAH

The GZRRC has a long term goal for the conservation of Cheetah and had created the species specific facilities for its conservation breeding in consultation with international consultants.

ABIOTIC ENVIRONMENTAL VARIABLES

The species usually thrive in dry grassland habitat and mostly in arid and semi condition. Although within captivity the species need protection from the inclement weather condition. Thus adequate ventilation within the indoor enclosure has been provided for the species for improving the air quality and the moisture condition. Sufficient natural lighting has been ensured within the indoor enclosure for routine cleaning although subdued light levels are recommended.

ENCLOSURE SPECIFICATIONS

A major component of the management of Cheetah within captivity and the health care program is the facility design. Important aspects to be considered includes the size of the enclosure, the substrate, and shelter areas. Enclosure should be of adequate size to allow the animals with a variety of sites to stimulate activity. The facility within GZRRC having a total of 19 acre area devoted to keep the species. The 10 specially designed enclosures to keep breeding individuals having a total of 19000 square meter of area having open enclosure and paddock area. There are ten separate enclosure each for keeping male females and six enclosures for keeping juvenile animals. Each enclosure having an indoor enclosure as per the need of the animal. Each enclosure for male having the area of 40000 square feet, whereas each of the enclosures for the female having 16000 square feet.

BEHAVIOURAL ENRICHMENT & HUSBANDRY PRACTICES

Behavioural enrichment of the animal kept in captivity is an important aspect to allow the animal to show species typical behaviour. Wooden Logs have been provided within the enclosure to allow the animals to scratch for claw wear and maintenance. The animals have adequate hiding areas within the enclosure for limited seclusion. Each enclosure is provided with visual barrier for the species to completely hide behind and a den that can be defended against a cage mate. A separate holding area has been provided in order to safely move animals from their primary enclosure for cleaning, feeding and medical procedures.

Protection from temperature extremes, wind and rains has provided to each individuals in captivity and each individuals have access to both outdoor and indoor enclosures. Indoor enclosure are well ventilated to minimize odour, dust and moisture condensation. Fresh clean water is made available at all times and water bowls are cleaned and disinfected daily. Automatic watering devices are used for the species.

Perches and shelves where the animal climb, sit and rest have been provided free of faeces and urine and they are cleaned at regular interval.

Natural settings with vegetation and soil provide good enclosures for cheetah. The dirt substrate may become contaminated over time with micro organisms and parasites thereby exposing the cats to potential concentrations of pathogens. Contaminated substrates is removed periodically and replaced with clean materials. Further, a cleansing regime is followed to disinfect the substrate.

Each enclosure has provision for clean water accessible to both the animals and the animal keepers.

NUTRITION

Free roaming Cheetahs consume a variety of whole vertebrate prey, while eating muscle, skin, fur/feathers, as well as viscera and bones. They get a balanced diet in the wild that is difficult to replicate in a captive environment as the prey animals fed to them in captivity have had different species. In an captive setting, the husbandry and nutrition administered to cheetahs needs to be optimized, in order to maintain the welfare of the animal and increase the success of the captive breeding program. While designing the nutritional requirement of the species at GZRRC, the care is being taken that all animals diet get the adequate calcium phosphorus balance, thus inclusion of bone for chewing, a varied diet including occasional whole body carcass. Other than that unique nutritional requirements like dietary vitamins (Vitamin A), arachidonic acid, taurine, and niacin are being added within the diet as per the requirement of the animals and as prescribed by the Nutritionist and Veterinary Officer of the GZRRC.

REPRODUCTION

Reproductive efficiency in captive cheetahs is reported to be a relatively poor. The problems associated with breeding, including infertility and high infant mortality, have been related to management techniques. The major concerns are related to the nutrition, enclosure size and design, human contact, segregation and re-introduction, as well as sex ratio also. At the GZRRC, it has been envisioned that the optimal condition for the captive breeding will be explored with the help of national and international experts from the field.

Breeding cheetahs in captivity requires careful attention to several technical aspects to ensure their health, well-being, and successful reproduction.


CHEETAH
CONSERVATION
BREEDING
DIET &
NUTRITION
ENCLOSURE
DESIGN
HEALTHCARE
BEHAVIORAL
ENRICHMENT
BREEDING
MANAGEMENT
GENETIC
DIVERSITY
ENVIRONMENTAL
CONDITIONS
TRAINING &
SOCIALIZATION
RESEARCH &
COLLABORATION
CONSERVATION
EDUCATION

RECOMMENDATIONS:

i. Enclosure Design: Create spacious and naturalistic habitats that mimic their wild environment. Include areas for exercise, shelter, privacy, and enrichment.

ii. Diet and Nutrition: Provide a balanced and species-appropriate diet rich in lean meat, vitamins, and minerals. Consult with veterinarians and nutritionists for tailored feeding plans.

iii. Healthcare: Regular health checks, vaccinations, and preventive care are crucial. Develop a comprehensive healthcare program in collaboration with experienced veterinarians.

iv. Behavioral Enrichment: Stimulate natural behaviors like hunting, climbing, and social interaction through enrichment activities such as toys, puzzles, and simulated hunting exercises.

v. Breeding Management: Understand the reproductive biology of cheetahs, including estrus cycles and breeding behaviors. Maintain records and pedigrees for genetic diversity and conservation purposes.

vi. Genetic Diversity: Cooperate with accredited breeding programs to avoid inbreeding and maintain a healthy genetic pool. Exchange animals with other institutions to introduce new genetic lines.

vii. Environmental Conditions: Monitor and control environmental factors such as temperature, humidity, and lighting to create optimal conditions for breeding and rearing offspring.

viii. Training and Socialization: Train cheetahs for cooperative behaviors like voluntary medical procedures, crate training, and positive human interactions. Promote socialization with conspecifics to support natural social structures.

ix. Research and Collaboration: Stay updated on scientific research and collaborate with experts in cheetah conservation, reproduction, and management to implement best practices and address challenges effectively.

x. Conservation Education: Use captive breeding programs as opportunities for public education and awareness about cheetah conservation issues, habitat preservation, and wildlife protection efforts.

By addressing these technical requirements comprehensively, captive breeding programs can contribute significantly to the conservation of cheetahs and their genetic diversity.

CONCLUSION:

The World's conservation Union's development of a global network for species survival (IUCN, 1991) identifies the threats that endangered species face from the growing human population and its increasing consumption of natural resources. The species survival commission also recognizes the full significance of captive breeding programs to reinforce conservation efforts in the world.

The in-situ population of Cheetah is decreasing world-wide and in India it is extinct from its geographical distribution range. There is immediate need to rejuvenate the existing population of the species in its distribution range. The species is an ideal candidate for future re-introduction projects also. The Govt. of India have took the initiative for the re-introduction program from 1970s onwards. The Supreme court of India allowed the import of African Cheetahs in year 2020 and the reintroduction program for Cheetah in India Initiated thereof. In year 2022 the reintroduction program initiated in Kuno National Park in the state of Madhya Pradesh.

The conservation breeding of endangered species is one of the important initiative to conserve threatened species of the Central Zoo Authority. Cheetah being extinct in the wild in India and having threatened population in other range countries is one of the ideal candidate for conservation breeding.

The Greens Zoological Rescue and Rehabilitation Centre is having the commitment to saving species by uniting the expertise in animal care and conservation science with the dedication and passion for nature through best practice and management and bringing education and awareness among the people. GZRRC with its state of the art facility for animal welfare is willing to participate in the conservation breeding of certain endangered species. The initiative of Conservation breeding of Cheetah will be in line with the long term conservation goal of the species globally. The infrastructural facility and the trained and dedicated manpower of GZRRC is well equipped for taking up the planned conservation breeding program of the species.


ex-situ
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