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Popular Article

Cheetah Conservation in India

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Introduction

The cheetah (*Acinonyx jubatus*) is one of the most threatened big cats in the world. Although it was once found across sub-Saharan Africa, the Middle East and as far east as India, the species has been lost from 91% of its historic range. National Academy of Sciences (PNAS) reported that fewer than 7,100 cheetahs remain in the world. Cheetah Conservation Fund (CCF) believes the number should be a little higher, but still less than 7500. The cheetah is listed as Vulnerable by the World Conservation Union (IUCN) Red List of Threatened Species. Two subspecies, the Asiatic cheetah (*Acinonyx jubatus venaticus*) and the Northwest African cheetah (*Acinonyx jubatus hecki*) are listed as Critically Endangered.

The main causes for species extinction are habitat loss, landscape degradation and overuse. Conservation efforts should focus more on the level of viable ecosystems. A strategic plan to do so is called Cores, Corridors and Carnivores (rewilding's three C's). This requires strong Cores of nature, mutually connected via robust Corridors. Based on island biogeography theory it can be calculated that if we want to conserve roughly 85% of the current biodiversity, 50% of the Earth's surface needs to be protected, 'Nature needs half'.

Various governmental and nongovernmental organizations have taken up the cause to protect and conserve wildlife by the following ways:

1. Protection of natural habitats,

2. Maintenance of the viable number of species in protected areas,
3. Establishment of Biosphere Reserves,
4. Protection through legislation,
5. Imposing restriction on export of rare plant and animal species and their products,
6. Improving the existing conditions of protected areas,
7. Mass education,
8. To declare some animals, trees, flowers as national and state symbol.

Conservation of animal genetic resources

This refers to all human activities including strategies, plans, policies and actions undertaken to ensure that the diversity of animal genetic resources being maintained to contribute to food and agricultural production and productivity, or to maintain other values of these resources (ecological, cultural) now and in the future.

The methods of conservation of animal genetic resources are as follows:

1. ***In situ* conservation:** It refers to conservation of livestock through continued use by livestock keepers in the production system in which the livestock evolved or are now normally found and bred.
2. ***Ex-situ* Conservation:** The off-site conservation of wildlife is called ex-situ conservation. It is the process of protecting endangered species, variety or breed of animal outside its natural habitat. Example: Removing part of the population from a threatened habitat and placing it in a new location, which may be a wild area or within the care of humans.

The degree to which humans' control or modify the natural dynamics of the managed population varies widely, and this may include:

- Alteration of living environments
- Reproductive patterns
- Access to resources, and
- Protection from predation and mortality.

Ex-situ management can occur within or outside a species' natural geographic range. The animals' maintained *ex-situ* exists outside an ecological niche. This means that they are not under the same selection pressures as wild populations, and they may undergo artificial selection if maintained ex-situ for multiple generations.

2.1 *Ex situ in vivo* conservation

It refers to conservation through maintenance of live animal populations not kept under normal management conditions (e.g. zoological parks and in some cases governmental farms)

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and/or outside of the area in which they evolved or are now normally found. There is often no clear boundary between in situ and ex situ in vivo conservation and care must be taken to **describe the conservation objectives and the nature of the conservation in each case.**

2.2 Ex *situ in vitro* conservation

It refers to conservation external to the living animal in an artificial environment, under cryogenic conditions including, inter alia, the cryoconservation of embryos, semen, oocytes, somatic cells or tissues having the potential to reconstitute live animals (including animals for gene introgression and synthetic breeds) at a later date.

Cheetah Reintroduction Plan

The fastest land animal in the world, Cheetah, declared extinct in India in 1952, will find a new home in the Kuno-Palpur National Park (KNP). African cheetahs are being brought under an intercontinental translocation project between India and Africa (mainly from South Africa and Namibia).

The plan to bring cheetahs to India initially from Iran and now from the African continent has been decades in the making, and fraught with controversy. Conservationists in India are skeptical of the plan's success and fear it will detract attention from the conservation of other endangered species in need of translocation, like the Asiatic lion.

India's Rationale behind Reintroduction of Cheetah

Let us understand India's rationale behind reintroduction of Cheetah.

1. Biological Objectives

To re-establish the ecosystem function role of the cheetah in representative areas of its former range and contribute to the global effort towards the conservation of the cheetah as a species. Bringing the Cheetah back will make India the only country with five species of big cats: tiger, lion, leopard, snow leopard and cheetah.

2. Enhancing Livelihood Options

Cheetah reintroduction will boost and enhance living conditions of the local communities in and around the landscapes where the cheetah is likely to be introduced through increased revenues from ecotourism and associated activities.

3. Keeping the Food Chain Intact

Top predators regulate all levels in a food chain and are considered as umbrella species for the food chain. Cheetah can be a charismatic flagship and umbrella species to garner resources for restoring open forest ecosystems and bringing back the balance in the food web.

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4. Climate Change Mitigation:

It will enhance India's capacity to sequester carbon through ecosystem restoration activities in cheetah conservation areas and thereby contribute towards the global climate change mitigation goals.

Causes of the Extinction of Cheetahs in India:

The cheetah in India has been recorded in history from before the Common Era. Records of cheetahs being captured go back to the 1550s. Reduced levels of genetic heterogeneity due to a historical genetic bottleneck resulting in high infant mortality in the wild and its reduced ability to breed in captivity were some of the major factors for extinction.

1. Sport hunting

The consistent and widespread capture of cheetahs from the wild (both male and female) was happening over centuries. From the 16th century onwards, detailed accounts of its interaction with human beings are available as it was recorded by the Mughals and other kingdoms in the Deccan.

2. Bounty killings

The British added to the woes of the species by declaring a bounty for killing it in 1871. The final phase of its extinction coincided with British colonial rule. It is recorded that the last cheetahs were shot in India in 1947, and officially declared extinct in 1952.

3. Low Fertility and High Infant Mortality in Captivity

Its reduced levels of genetic heterogeneity due to a historical genetic bottleneck resulting in reduced fecundity and high infant mortality in the wild and its inability to breed in captivity are the major reasons for the extinction of the Asiatic cheetah in India.

4. Human-Wildlife Conflicts

The reasons for extinction can all be traced to man's interference. Problems like human-wildlife conflict, loss of habitat and loss of prey, and illegal trafficking, have decimated their numbers.

5. Other Factors Responsible for its Extinction

The advents of climate change and growing human populations have only made these problems worse. With less available land for wildlife, species that require vast home range like the cheetah are placed in competition with other animals and humans, all fighting over less space.

Challenges Associated with the Translocation of Cheetah in India

Translocation of Cheetahs is difficult task and following will be the challenges may face during translocation process:

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1. Transition from Enclosure to Wild

A pivotal issue is whether a cheetah living in an enclosure and being fed with a prey will be able to hunt in the wild on its own. For instance, Sundari, the tigress which returned from Satkosia in Odisha after a failed relocation attempt, was finally kept captive for life in Bhopal Zoo.

2. Adaptability

Reintroduced species experience increased vulnerability to influences of drift, selection, and gene flow evolutionary processes due to their small sizes, and climatic and ecological differences between source and native habitats. African Cheetahs need long open spaces to run. Indian parks tend to be much smaller than those in Africa, offering less chance for such free movement. Studies in Africa have shown that female cheetahs are solitary and roam vast distances whereas male defend smaller territories and mate when females pass through, creating breeding issues.

3. Coexistence of large predators

It has never occurred anywhere else, so there is no real-life experience to draw upon to suggest the coexistence of cheetahs, lions, tigers, and leopards could be comfortable. Studies have shown that in Africa, the leopards have hunted down cheetahs as prey, and similar fears are being expressed for Kuno, which has about 50 leopards in and around the core area, where cheetahs will be housed.

4. Rehabilitation Concerns

For Cheetah's habitat to be adequately protected, many villages will have to be relocated, which will certainly impact the locals and cause disturbance and migration.

Conclusion

Wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered, the effective conservation of wild animals is of great significance. Conservation of Cheetah in India is possible after successful reintroduction of Cheetah from other countries. The developments surrounding the cheetah reintroduction program highlight the importance of careful evaluation and management of habitat suitability, as well as addressing other challenges. Success of reintroduction depends on proper implementation of scientific plan of Cheetah project. This project should be review and modify time to time for success of the objective of Cheetah conservation in India.

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