

# A Brief Review on Reintroduction of Carnivores and its necessity: *Reintroduction of larger carnivores in Idukki Wildlife Sanctuary*

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## ABSTRACT

The paper aims at a brief review of reintroduction of species, particularly carnivores and the necessity for such introductions. A recommendation is made to reintroduce larger carnivores in Idukki Wildlife Sanctuary, Kerala on the grounds of ecological reasons as well as for the conservation of the species.

## 1. Introduction

The role played by the apex predators/carnivores in an ecosystem is indisputable. An apex predator is one at the top of the food chain, or one who "as an adult, has no natural predator within its ecosystem." In nature, a balance tends to exist between the predators and prey within an environment. If the population of either of them declines, then the balance is disrupted. The carnivores/predators play a huge role in our ecosystems by regulating prey species numbers. The removal or population decline of large carnivores can alter prey and other species, plant composition in a habitat.

According to James *et al.*, (2017) in those areas where apex predators have been eradicated, reintroducing apex predators or controlling mammalian herbivores would be necessary to mitigate destructive herbivory. For example, the Australian wild dog or dingo had a positive influence on the population of kangaroos and small granivorous birds. The dingo eradication is related to the decline in the abundance of small granivorous birds though they don't interact directly. Dingoes facilitate small granivores by reducing populations of large grazing kangaroos thereby increasing grass seed production and availability. Hilton and Taylor (2000) observed mammals are most affected with the present extinction rates among the several groups and nearly a quarter of the surviving species are faced with the risk of extinction. Carnivores in particular are more prone to those factors that lead to the extinction of species. Rapid growth of population and the related dependency on natural resources will only increase the further extinction rates of species. Hence, in situ and ex situ conservation measures need to be strengthened.

According to Van Wieren (2006) carnivores have been wiped out from a lot of ecosystems. Reintroductions have become a conservation tool for bringing back species which have become either locally or globally extinct (Woodroffe and Ginsberg, 1999). Carnivore reintroductions in particular can be seen as a step towards restoration of the natural integrity of the ecosystems (Noss *et al.*, 1996) since they influence the

structure and function of ecosystems via predation (Terborgh *et al.*, 2001).

## 2. Materials and Methods

A brief review on the existing literature related to reintroduction of animals, particularly carnivores was done to get an insight into the need for, success rate, failures and other issues related to reintroduction.

## 3. Results and Discussion

The exploitation of land and forests by humans, along with poaching for sports and food has led to the extinction of several species worldwide. Risk of extinction is reported to be greater for populations with a few individuals than those with many individuals (Pimm *et al.*, 1988). Understanding the distribution, population sizes and threats to endangered species is vital for their conservation and management.

Reintroduction can be defined as an act of releasing and trying to establish a species in an area which was part of its historical range but from where it has disappeared or become extinct. Captive breeding and reintroducing species back into wild is an ex situ conservation method and have reaped success in the past. For example, the Arabian Oryx, a medium sized antelope native to the desert of Arabian Peninsula was hunted down to extinction in the wild by 1972. The Phoenix zoo and the fauna and flora preservation society of London, together with World Wide Fund for nature started a captive breeding programme in 1962, realizing the potential threat of extinction the animal was facing. The captive breeding programme had over 200 successful births which were later sent to other parks and zoos. In 2011, there are nearly 1,000 Arabian Oryx in the wild with 6,000-7,000 individuals in captivity (Platt and John, 2011).

Reintroduction is an important conservation tool and has a significant role to play in the carnivore restoration process. Reintroductions should establish self sustaining populations with high reproductive fitness in the wild and ample genetic diversity (Frankham *et al.*, 2002). The population of mammalian

carnivores is linked with prey size, prey biomass and factors of disturbance (Carbone and Gittleman, 2002; Karanth *et al.*, 2004).

The reintroduction process should be based on scientific principles in order to ensure that the entire process is a success. The reintroduction of Florida Panther (*Puma concolor*) in Florida, USA and African wild dog (*Lycaon pictus*) in Africa in the 1980's and 90's are perhaps the first of its kind. Five tigers were reintroduced in Sariska Tiger Reserve in Rajasthan from Ranthambhore Tiger Reserve and the process was a success. The success was replicated in Panna Tiger Reserve in Madhya Pradesh and the reintroduced tigers have successfully bred (Shekhawat, n.d).

However, reintroduction of carnivores can face local resistance. According to Treves and Karanth (2003) reintroduction of carnivores is a biological as well as a political challenge. Biologically, reintroduction of large carnivores is difficult because of their habitat requirements which can lead to conflicts with humans. Politically, people from different professional, organizational, geographical or economic groups have different views on the reintroduction of carnivores (Clark, Curlee and Reading, 1996; Primm and Clark, 1996).

Despite these problems, carnivore reintroductions have been conducted in several parts of the world like the black footed ferret in the United States (Dobson and Lyles, 2000), the grey wolf in Yellowstone National Park (Fritts *et al.*, 1997). Realizing the importance of all such factors, IUCN (1995) have come up with a general set of guidelines for reintroductions in order to ensure that the programme yields the intended results.

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## 4. Recommendations

Idukki Wildlife Sanctuary in Kerala forms the catchment area of the Idukki reservoir and is home to several species of flora and fauna. Beside elephants, deer species such as sambar deer, barking deer, mouse deer and wild boar are found here. In addition, a large number of feral cattle are also seen in the sanctuary. However, the apex predator in the sanctuary is dhole or the Indian wild dog. Tiger hasn't been recorded in the sanctuary while the presence of leopard is also questionable. The absence of such larger carnivores needs to be addressed. Protected areas are those regions set aside for the conservation of flora, fauna and the preservation of landscapes and as such shall serve as an abode of rare and endangered species. These areas shall also function as centers of captive breeding with reintroduction of species that have gone extinct locally and also species with very low numbers. It is recommended to reintroduce populations of leopard or tiger, after a thorough investigation, on the grounds of ecological reasons as well as for the conservation of the species.

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