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# Cheetah Reintroduction in India

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## ABSTRACT

*Bringing an alien species of animals from one country to another can have dire consequences which can be assessed by the impact caused to the ecosystem of the country. There is no sure way to predict how it will behave when introduced to a completely new environment. We do know that this practice is the cause of billions of dollars of damage in the form of environmental and economic harm done to several countries worldwide. We have relied on observational techniques to gather data and have relied upon data produced by various institutions such as the College of Agriculture and Life Sciences, Cornell University, the United Nations Decade on Biodiversity, Centre for Biodiversity Policy and Law and International Union for Conservation of Nature. Our findings provide evidence against the decision of the Central Government to introduce African Cheetahs in India.*

**Keywords:** *The Wildlife (Protection) Amendment Bill 2021, invasive species, Cheetahs.*

## I. INTRODUCTION

Animals play a big role in maintaining the balance in an ecosystem. The survival of each key Animal species is crucial for maintaining the balance of nature through regulation of food chain. The extinction of important animal species can lead to the wiping out of certain flora as well. Animals such as bees in addition to making honey, also help in the reproduction process of plants by transferring pollens from the anther of one male plant to the stigma of another female plant.

### (A) Origin

The origin of Animals on Earth can be traced back to thousands of millions of years ago, when highly heated matter such as lightning hit the water, upon which a bundle of genetic material was formed by the combining of chemical atoms. After that, the chain of genetic material was taken in by some organic material which resulted in the formation of the first ever cellular organism. Later on, multicellular organisms were formed through the cloning of cells. These multicellular organisms later evolved into the animals of today. It is only an assumption on how life was created as there is no concrete evidence to explain the process of formation of life on Earth.

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Animal reintroduction refers to the practice of releasing a particular species of animal into a particular habitat, in the hope that it manages to survive or thrive in the region where it is located. It can be done for any purpose such as to make the animal establish its own place in the local food chain or to control the population of a species. Releasing ferrets in a region overpopulated by rats can help control the rat population.

Animals should only be released into the wild after taking consideration as species dominance is very common in nature. <sup>2</sup>Very recently in Johannesburg, South Africa, an incident of Orcas, an apex marine predator killing Great White sharks, another large ocean predator was captured via drone footage.

Depending on the circumstances, Animal Reintroduction can prove out to be either detrimental or beneficial to the environment. It can either help in restoring the balance of nature by the introduction of new predatory species in order to challenge the most dominant species in the local food chain or it can cause the sudden decline of a prey species which will be harmful to the nature.

Deep assessment of this practice has been done with this study, I have found out the positives and negatives of this practice, how does it impact the local ecosystem of the place where it is done, is human intervention with nature beneficial or detrimental and finally whether this practice is right or not alongside what degree of harm has been caused to the nature if what we are doing is not correct.

I have done this Research in light of Cheetahs being reintroduced in India for the first time since 1952 and with the passing of the <sup>3</sup>Wildlife (Protection) Amendment Bill 2021.

The Wildlife Protection (Amendment) Bill 2021 was introduced with the main aim of increasing the number of alien species protected under the law of India and to implement the CITES convention which stands for Conventional on International Trade in Endangered Species of Wildlife and Fauna. It was passed by the Lok Sabha on August 3, 2022.

### **(B) Research Question**

A question arises whether the reintroduction of Cheetahs in India stands inconsistent with recently passed Wildlife (Amendment) Bill 2021 as the bill mentions that it seeks to prohibit the import of animal species that are not native to India and whether bringing it back will negatively impact the local wildlife or its habitat.

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<sup>2</sup> NDTV, <https://www.ndtv.com/world-news/first-video-of-oceans-top-predator-killing-white-sharks-3405722> (last visited Dec. 26, 2022).

<sup>3</sup> Wildlife (Protection) Amendment Bill, 2021, Acts of Parliament, 2021 (India).

### **(C) Hypothesis**

Since the African Cheetah which is not a species native to India is being introduced, there are high chances that its introduction to the wilderness of India can prove out to leave an adverse impact on the local wildlife and environment. I say this because since this particular species of Cheetah has never been introduced to India before, we have no pragmatic proof that it will successfully thrive in India and maintain the balance of the ecosystem. The African Cheetah is more adapted to the Savannah grasslands of Africa, and we do not know how it will fare in the rugged and mountainous terrain of India. Furthermore, the prey animals of India are very different from that of Africa which will further create more problems in its adaption to the Indian habitat.

### **(D) Methods**

Through relying on observation techniques, I attempt to answer the question that is posed above. The Wild Life (Protection) Amendment Bill, 2021 defines invasive species as any “*plant or animal species which are not native to India and whose introduction may adversely impact wild life or its habitat.*”

By the above definition, the decision of the Central Government to bring African Cheetahs back into India is a clear violation of the bill as it falls under the definition of invasive species.

Invasive species refer to any species of animal that can cause huge environmental and economic harm when introduced to a region to which it is not native. They are spread through human interference with nature. It can make other animals go extinct and many species are endangered because of this. According to Researchers in France, harm caused due to invasive species is about a total of \$1.3 trillion dollars all across the globe to this day and it averages around a \$26.8 billion per year.

As per a study done in the College of Agriculture and Life Sciences, Cornell University located in the US, introduction of invasive species is huge cause for economic losses, Invasive species are a major cause of economic loss all over the globe. It is observed that over thousands of alien species are a major cause of economic disaster.

Furthermore, India is the second most invasion cost bearing country right after the United States, as it has lost Rs 8.3 trillion rupees in the last 6 decades to invasive species.

According to the <sup>4</sup>United Nations Decade on Biodiversity, invasive species has had a huge negative impact on the environment as it can lead to the changing of the atmosphere and the

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<sup>4</sup> CBDT, <https://www.cbd.int/undb/media/factsheets/undb-factsheet-ias-en.pdf> (last visited Dec. 26, 2022).

dehabitation of existing animal species. All of this has a huge impact on agriculture through slowing down of food production or even worse the destruction of food grains. This ultimately causes a huge negative impact on human welfare. It has resulted in the extinction of 40% of animal species since the 17<sup>th</sup> century and have led to environmental losses of over \$100 billion in the United States, United Kingdom, Australia, South Africa and India.

As per the <sup>5</sup>Centre for Biodiversity Policy and Law, alien species of fishes in Indian wetlands are responsible for damaging the aquatic ecology by depleting the aquatic vegetation through over consumption of food and leading to unwanted variation of species through cross breeding. Some of the invasive species that have been introduced into India are the tiny guppy fish, Suckermouth catfish, etc.

<sup>6</sup>International Union for Conservation of Nature states that invasive species leave tremendous impacts on nature, their effects aren't easily noticeable at first but carry great potential harming tendency and the damage that is caused by them cannot be undone. Some of these species are Mongoose, Redfox, Locust, etc.

Conservationist Valmik Thapar is not in agreement with the decision to bring African Cheetahs to India. He says that African Cheetah cannot survive beyond captivity into the habitat of India. India doesn't have the same facilities that South Africa has in terms of animal species protection. The area where it is being planned to be reintroduced, Kuno-Palpur is not a grassland and therefore it doesn't count as a habitat where the African Cheetah will be able to survive.

He referred to his book named <sup>7</sup>Exotic Aliens which reads that India in fact has never had a free ranging population of Cheetahs for the past hundreds of years and the Cheetahs that existed before 1952 were in fact African Cheetahs which were imported by Indian Maharaja and Princes and were used in hunting down blackbucks.

I will support these findings by taking some recent incidents of invasive species attack that have occurred in India and outside.

<sup>8</sup>Fall armyworm, a migratory American noctuid moth is an invasive species of insects that is capable of causing destruction on a large scale. It migrated to India in 2018 and caused a lot of destruction in multiple states. PK Chhuneja, head department of entomology in Punjab Agricultural University said that the pest only targets newborn plants of the maize crop. It

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<sup>5</sup> NATIONAL BIODIVERSITY AUTHORITY, <http://nbaindia.org/cebpol/pub/ias.pdf> (last visited Dec. 26, 2022).

<sup>6</sup> WWF, [https://wwf.panda.org/discover/our\\_focus/wildlife\\_practice/problems/invasive\\_species/](https://wwf.panda.org/discover/our_focus/wildlife_practice/problems/invasive_species/) (last visited Dec. 26, 2022).

<sup>7</sup> VALMIK THAPAR, EXOTIC ALIENS 34 (Aleph Book Company PVT Ltd 2013).

<sup>8</sup> Mongabay, <https://india.mongabay.com/2019/09/fall-armyworm-destroyer-of-maize-farms-causes-concern-in-india/> (last visited Dec. 27, 2022).

caused large scale destruction in North India in many districts of Uttar Pradesh, Punjab and Jammu Kashmir such as Jalandhar, Patiala, Ropar, Pathankot, Hoshiarpur and Fatehgrah. It also spread towards South India and attacked many parts of Karnataka. The National Bureau of Agricultural Insect Resources (research institute that comes under the Indian Council for Agricultural Research) identified this pest as fall armyworm within 2 weeks of invasion.

<sup>9</sup>The corn earworm, which is a major invasive species in the USA is known to cause big damage to crops. It is known to survive in hotter temperatures. It spends most of its winter underground and comes out in the summers. As per research done by the North Carolina University in the USA, due to increasing temperatures of the Earth as a result of global warming, soil temperatures have started to warm up faster than before and because of this invasive species of insects has begun to spread out more. Then as per research a done by the University of Washington, it was found that by an increased temperature of 2C more than the normal, invasive insects are going to consume more and as a result they will destroy 50% of more wheat and 30% of more maize crops than they do now.

## II. RESULTS

The damage that can be caused by an invasive species to any wildlife or habitat is assessed with the help of the following data: -

### 1) Economic Harm

Total loss caused due to invasive species is \$1.3 trillion dollars globally and it is approximately \$26.8 billion dollars every year- According to Researchers in France.

Invasive species cause huge economic loss globally- College of Agriculture and Life Sciences, Cornell University, USA.

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<sup>9</sup> The Guardian, <https://www.theguardian.com/environment/2022/sep/06/us-farmers-face-plague-of-pests-as-global-heating-raises-soil-temperatures> (last visited Dec. 27, 2022).

<sup>10</sup> Table 1, Invasive Alien Species, <https://www.downtoearth.org.in/coverage/invasive-alien-species-10861> (last visited Jan. 10, 2023).

INVASIVES ARE RAMPANT AND AN ECONOMIC DISASTER				
Huge losses (US \$ million)			Species in the US and India	
Introduced pest	US	India	Category	
Weeds			United States	
Crops	27.9	37.8	Total	Alien
Pastures	6.0	0.92		
Vertebrates			India	
Crops	1.0	—	Total	Alien
Arthropods				
Crops	15.9	16.8		
Forests	2.1	—		
Plant path				
Crops	23.5	35.5		
Forests	2.1	—		
<b>Total</b>	<b>78.5</b>	<b>91.02</b>		
Plants	42,000	25,000	45,000	18,000
Mammals	346	20	316	30
Birds	650	97	1,221	4
Reptiles and amphibians	247	53	741	NA
Fishes (Freshwater)	938	138	2,546	300
Arthropods	650,000	4,500	54,430	1,100
Microbes	134,644	20,000	NA	NA

India has lost about Rs 8.3 trillion rupees in the past 6 decades to invasive species, making it the second most invasion cost bearing country after the United States

## 2) Environment harm

It has caused extinction of 40% of animal species since the 17<sup>th</sup> century and has led to environmental losses of over \$100 billion in the United States, United Kingdom, Australia, South Africa and India. As per the United Nations Decade on Biodiversity 2011-2020.

Alien species of fish in the Indian wetlands is capable of causing high ecological harm through over consumption of food in an aquatic habitat and causing unwanted variations of species through cross breeding. This is said by the Centre for Biodiversity Policy and Law.

Invasive species leave a tremendous impact on nature, whose effects have potential to cause huge harm and the damage done cannot be reversed. As said by the International Union for Conservation of Nature.

## III. RECENT INCIDENTS OF INVASIVE SPECIES ATTACKS

Fall armyworm, a species of moth that has known to have migrated from America caused huge destruction in the many districts of the Northern Indian States and in the prominent cities of South Indian states such as Karnataka in the year 2018.

The corn earworm, an invasive species of insects in the US is only capable of thriving in warmer climates and as a result of rising climate temperatures by 2C, it has spread out and has damaged the crops of the places where it couldn't survive before.

## IV. DISCUSSION

The African Cheetah which is being brought back is an invasive species as per The Wildlife (Protection) Amendment Bill, 2021 and is thus capable of causing great harm to the habitat of

India. Hence, the decision of the Central Government to introduce an alien species which is the African Cheetah to India is inconsistent with the Act. Invasive species of animals can cause environmental and economic harm when introduced to a new region.

Throughout history, it has been responsible for causing huge scale economic loss to many economies all across the world. The Central Government of India should learn from the lessons of the past and should not let the African Cheetah be brought to its forests as it already stands as the second most invasion bearing country right after the US it and has suffered a loss of Rs 8.3 trillion rupees in the last 60 years to the invasive species alone.

It has caused huge environmental harm through ruining the ecosystem of many places by destroying other animal species. It has caused major damage to the agriculture sector of many countries by destroying food grains, this causes damage to the economy and it ultimately leads to lowering the quality of life for the average human being. Over \$100 billions of environmental harm has been done in the United States, the United Kingdom, Australia, South Africa and India.

We can learn a lot of from the recent invasive insect attacks that have happened: -

The fall armyworm insect attack in India in 2018 destroyed the maize crop of many districts of North Indian states and South Indian states which severely impacted the economy.

The corn earworm which can only survive at hotter temperatures has spread to many parts of the USA and has left devastating impact in 2022. This is due to rising Earth temperatures.

In consideration of the degree of environmental and economic harm that is caused by the spread of invasive species worldwide. Bringing the African Cheetah has the potential to cause great harm to the wildlife and its habitats of India. Introduction of a foreign predatory animal can lead to greater competition among predators which can make prey animals more scarce. Thus, this has the potential to cause an imbalance of the food chain. As it can cause the sudden decline of a prey item, human hunters and gatherers that live in remote villages that are situated in the forests of India are also going to be affected by this which can leave a negative impact on their economy thus leading to loss of human welfare. India's climate is vastly different from Africa's climate will cause further adaptation problems.

I have come to a conclusion that introducing a foreign species of Cheetah to India without due consideration is not the right step and there needs to be done more planning and research on this. India should try to negotiate with Iran to bring home some Asiatic Cheetahs.

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