# ARE THE CURRENT EFFORTS ENOUGH TO CONSERVE WILDLIFE?

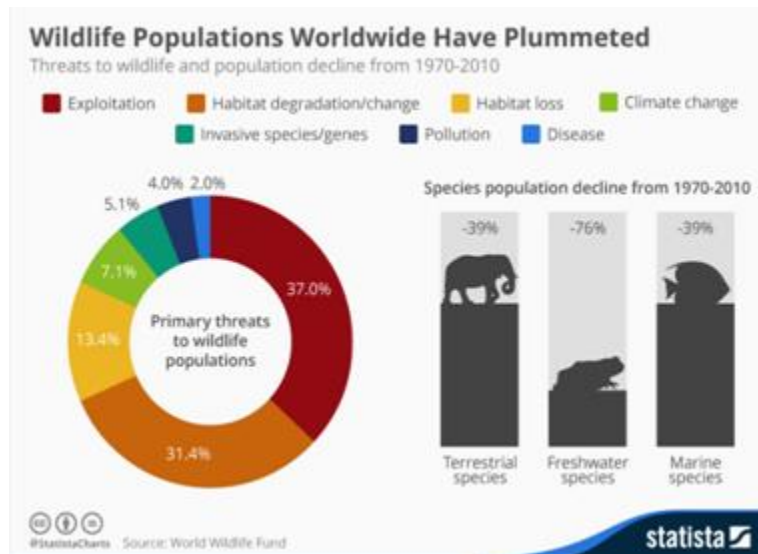Shagun Modi

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**ABSTRACT**

In this world, various ecological systems are interdependent, and a state of equilibrium is required amongst them for long-term sustainability. Any ecological system needs to remain stable, have balance in the number of each species that undergoes gradual change through natural succession. However, in the recent past, this balance has been disturbed mostly due to man-made causes. In the name of development, we cut down acres of green cover and vegetation; for the sake of comfort, we burn fossil fuels and emit greenhouse gases chocking the environment; from earlier days of pleasure hunt to today's requirement of feeding the large population, we have been killing and destroying the wildlife and had domesticated many wild species like a pig, chickens, and cows for mass production and feeding. All these have directly or indirectly affected every ecological system that exists today. In the current research, the impacts of human activities on wildlife and present probable effective solutions will be discussed to overcome the problem of wildlife damage.

**Introduction**

**Wildlife and its Importance**

Theoretically speaking any ecosystem is a closed cycle and is not always in a complete state of balance. An ecosystem supports many species of plants and animals and is capable of withstanding natural changes. Losing some species from an ecological cycle doesn't disrupt the cycling of material and energy. However, there are certain species of animals, which if collapsed due to sudden change in environment or killed by hunters, will affect the next level of the ecosystem and the entire ecosystem will collapse subsequently.

As per wiki, wildlife is defined as the collection of all the flora and fauna that are not domesticated and shall be kept away from human interventions. However, we have violated the very basics of the above definition.

**Wildlife Populations Worldwide Have Plummeted**
Threats to wildlife and population decline from 1970-2010

At this Time, approximately half of the world's initial plantations have been ruined and are being removed at a rate ten times quicker than any other probable level of re-growth. It is a significant loss to the habitat. In addition, wetlands and water bodies are being filled for new development and construction as land is a valuable commodity to accommodate the growing human population.

It has resulted in irreversible damage to the unique and diverse soil ecosystem which leads to low soil fertility, rapid soil erosion, and incident of landslides in the hilly area.

According to a shocking report released by the World Wildlife Fund by Niall McCarthy, published in 2014,(refer to the graph above), we are the reason for the depletion of half the planets' wildlife population since last three decades of 20th century. The major causes are exploitation and climate change. On average 52 percent of the world's animals and fish have been depleted in the last forty years. These damages are significant and had raised the question of our long-term survival on this planet.

Wildlife is extremely important for our long-term survival, as per Chandan Jani world press, it is important because:

- Maintains the Ecological Balance: Wildlife helps in maintaining the ecological balance of nature. For example, the overkilling of carnivores leads to an increase in the number of herbivores which in turn resulted in the depletion of vegetation and grasslands. Lack of food ultimately leads to the death of herbivores due to starvation, mass migration, and venturing out in farms and villages in search of food and destroying crops. This indirectly

affects the carnivores' population and in long term, it also starts declining due to the lack of enough prays like deer, goat, and cow to feed on. The below diagram clearly explain the interdependencies of various species in a basic food chain.

- An Additional secondary aspect of protecting wildlife is to avoid the domestication of animals. Domestication of several species has resulted in frequent transmission of many diseases from animals to human beings due to their close interaction and ultimately the next species on the food chain will starve. The modern wave of viral contagions like COVID and SARS are some of the diseases that have affected human beings in undesirable ways and are assumed to be transmitted due to large-scale domestication and meat intake by a human being. So, animals need to be kept in their habitat for the betterment of humans and animals as well.
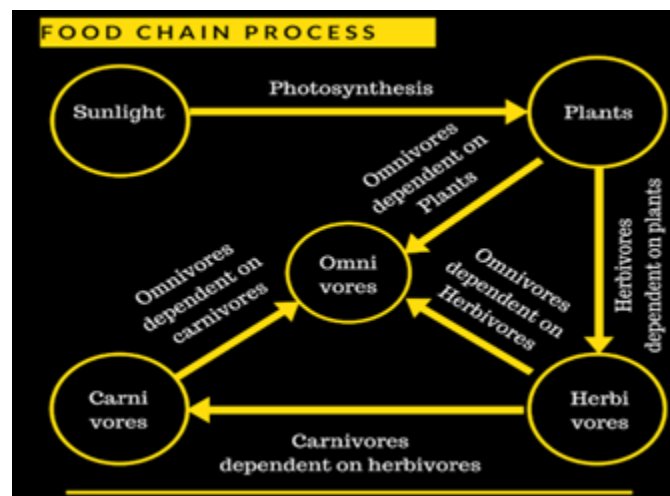


- Any ecological system has its cleaning mechanism. For example, wild animals like vultures, eagles, and jackals feed on carcasses and help in better decomposition, cleaning the environment on one hand and replenishing the nutrients back to the soil keeping it fertile. But, due to overuse of antibiotics on domesticated animals like cows and buffalos combined with air pollution a sharp decline in the population of scavengers like eagles, vultures and jackals have been noticed due to poisoning as they feed on carcasses of these antibodies infested domesticated animals, drink polluted waters from rivers and rivulets.

- Prevention of soil erosion and maintaining the fertility of the soil are very important for ecological balance. Plant, vegetation, and green cover prevent soil erosion. However, mixing litter by the movement of animals and its conversion into spongy humus by micro-organisms helps in maintaining the fertility of the soil.

- Forest serves as hunger serves that use CO2 and helps in maintaining the temperature on earth by replenishing the environment with fresh O2 supply and moisture, they are an important component for the sustenance of the water cycle.

**Major causes of Wildlife Damage**

According to Philip J. Nyhus in 2016, Homo sapiens have competed with other species for habitat and reserves and have modernized and altered to become the major natural force on the planet. This dispute has contributed to the extinction of numerous species, and changes in ecosystem structure and function. As per The New Book of Popular Science2006, the major causes of wildlife annihilation are:

**1. Habitat destruction:**

Habitat serves as a refuge, shelter, and provide food to the wild animals. Ruining of habitat is the root cause of extinction and demolition of various species. Various species of flora and fauna are incapable of adapting to abrupt changes in their surroundings and habitat. For example, Panda's habitat is temperate forests situated in hilly areas and mostly fed on bamboos. Due to rapid urbanization in China, the forests were destroyed resulting in the mass extinction of Pandas as they are very sensitive and today, they are one of the endangered species on the earth. With the ever-increasing human population and rapid urbanization and industrialization forests were destroyed to create new cities and to build new factories. To gain economic advantages, millions of square kilometers of grasslands were destroyed to plant commercially viable trees like palm trees for palm oil production. Due to global warming in recent times many forests and natural habitats were destroyed due to forest fires. Habitat desolation has resulted in ecological imbalance, food shortages, and the extinction of many exotic species.

**2. The killing of animals and Extinction:**

Since life first appeared on earth billions of years ago, animals and plants have lived and died and species have evolved and become extinct and so did the dinosaurs, which dominated the earth billions of years ago disappear because of massive changes in the global climate. In the recent past, the rate of extinction has a steep rise northwards because of human activities.

Humans directly kill animals for food, experimentation, medicinal use, adventure, and commercial trade in exotic items like ivory and horns. Indirectly, they kill animals by destructing their habitat and by pollution. As per Brandon Keim, humans are directly responsible for killing more than 25% of all vertebrates. Micheal Gross in his article "Current Biology" published on 17th June 2019 quoted the UN biodiversity report released in May has highlighted that the current situation of biodiversity is in a critical stage and will affect human survival in the coming days.

The majority of mass extinction is due to habitat loss and land-use change, but human hunters actively killing animals are making the situation even worse. In this report, the major change highlighted was to emphasize a drastic reduction in meat use. The current meat and poultry industries use massive agricultural land and plant products that could feed more people if they didn't have to move through an animal, and it also makes a large impact to growing climate catastrophe with its greenhouse gas emissions.

Commercial purposes-large mammals also called Megafaunas are killed for commercial purposes. For example, elephants are killed for ivory, rhinoceros for the horns, tigers for the fur and its reproductive organ, whales for fins. The species like cheetah, leopard, jaguar, ocelot, and margay are usually hunted for their fur, for sport, and to protect livestock. Cheetahs are extinct in India. Populations of South American wild cats have also been impacted by the illegal fur trade. Commercial hunt down is also precisely accountable for the threatened status of many species of whales. One tragic example is the bluefin whales which were hunted to get their fins, which are widely consumed as a delicacy throughout the world.

### 3. Pollution& Climate change

Environmental problems are indeed a serious concern and recent frequent incidents of cloud bursts, heavy rain, forest fires, heat waves, and drought are frightening. Until recently, nobody in the world was taking warnings about human impact on the natural world seriously. However, recently after 1970 with ever-increasing research and widely publicize events serious threats to the environment because of human interventions were widely acknowledged. Major environment factors are described in brief below that have affected the wildlife the most due to human activities of rapid urbanization, deforestation, and significant use of fossil fuels:

**Rising temperature:** In the last two decades the average temperature of the earth has increased the most. In the past century itself, the average earth's temperature has increased by 1.5 degrees Fahrenheit. The 10 warmest years on record have all occurred since 1998, with 2016 being the warmest year on record. It has resulted in the melting of glaciers and on average the sea levels have risen by 8 inches in the past century. It has severely affected coastal habitat and marine ecology and many species like polar bears, seals and penguins have started dying due to lack of food.

**Change in precipitation patterns:** Due to climate change, the precipitation patterns are changing rapidly. Rain spells are shorter and intense results in heavy flooding and obliteration of wildlife and habitat on large scale. Places like Amazon had seen on average less rainfall resulting in drought and wildfires. Climate change is causing extreme weather conditions like the recent

heat dome in Northern Atlantic region. These extreme weather conditions are further accelerating wildlife eradication.

**Acidification of oceans**: The ocean has absorbed a large proportion of the carbon dioxide and other harmful gases that we have been pumping into the atmosphere due to the rampant use of fossil fuels and industrial exhaust since the beginning of the last century. It has resulted in shrinkage of the oxygen-carrying capacity of the ocean and a decrease in its pH thus resulted in the mass extinction of marine species like whales and sharks. These changes would take many centuries to reverse.

**Existing Solutions:**

**1. Conservation**

Conservation in broader terms is to stop wasteful utilization of natural resources and protecting wildlife and habitat. It means sustainable use of nature by human beings for activities like mining, agriculture, hunting. The ever-increasing human population has resulted in the rapid rise in utilization of all-natural resources far more than its inherited regeneration rate. It has resulted in the loss of biodiversity. Many governments have established reserve areas, centuries, and wildlife parks to preserve the habitat and prevent the extinction of endangered species. They have framed conservation practices and policies ranging from removal of invasive species from various food cycles and preserving land for wildlife and parks. Even though several steps have been taken to preserve the wildlife from last quarter of last century , today we have approximate 26,000 species at the risk of extinction or are declared endangered.
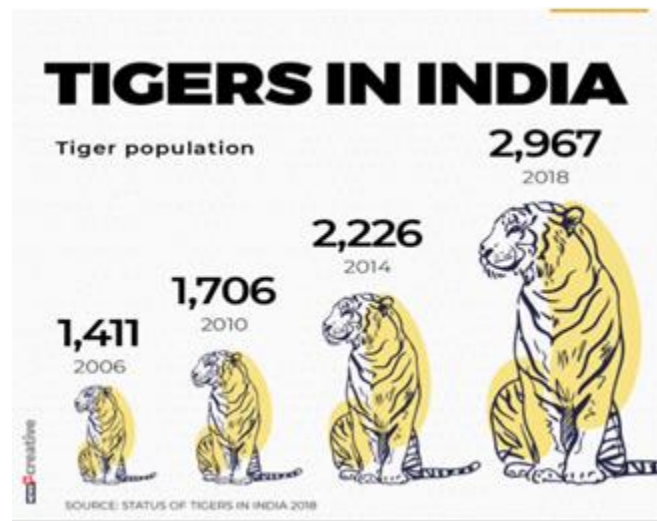
Despite conservation efforts, in the US the vaquita will likely go extinct in the next few years with so few numbers and continued threats. Other animals, including the grizzly bear, bald eagle, and California condor, have recovered from near extinction thanks to conservation action.

**2. Stricter rules/regulations and enactment of laws**

Many countries have put in place stricter frameworks and rules and regulations to prevent wildlife and it has resulted in considerable improvement in the prevention of many wildlife species from extinction. For example, when tiger population in Inia had reduced to only around 1800 from 40,000 a few decades ago. India started Project Tiger in 1973 to conserve Tigers and their habitat, a nation-wide ban on tiger hunting was placed.

The extinction of many species of wildlife in India has sounded the warning bells. We have the zoological survey of India (ZSI)with the headquarters in Kolkata and 16 regional stations spread over the country for surveying the faunal resources of the country. The wildlife protection act,

1972 governs the wildlife conservation and protection of endangered species both inside and outside the forest. Under this act, trade in rare and endangered species has been banned. It is a cognizable offense to kill these species. There are presently 75 national parks, 421 wildlife sanctuaries, and 35 zoological gardens in the country, covering nearly 4.5 percent of the geographical area. But still much remains to be done to protect and conserve the wildlife in India. By enforcing the wildlife protection act in combination with public awareness campaign India had successfully revived the Tiger population in India which was on the verge of extinction. The below graph clearly shows improvement in the census of the tiger population in India.



TIGERS IN INDIA

Tiger population

1,411 — 2006
1,706 — 2010
2,226 — 2014
2,967 — 2018

SOURCE: STATUS OF TIGERS IN INDIA 2018

**Recommended Solutions**

**1. Artificial Intelligence (AI) and Wildlife Conservation**

As per Jackson Ailers article Oct-2019 on smartparks.org. Historically conservationists must travel wide distances and spend hours in the field to study and capture the biodiversity of the area. However, with the advent of AI, the conservationist's efforts have been reduced and it became more efficient, and their reach has expanded.

In earlier days conservationists have used camera traps to track and monitor biodiversity in remote areas. They physically travel to these locations to collect the cameras and later put great effort into studying and analyzing the images to identify the species, their behavior, and the overall health of biodiversity. Now, AI-enabled cameras and drone footages provide them with real-time images with advanced software that identify the gender and species accurately. Thus, a conservationist can track and monitor biodiversity spread across miles with minimum effort.

Apart from this, there are AI soft wares which through camera traps identify human beings, weapons, and vehicles that they should not venture out. It serves as a warning to park guards to neutralize poachers before they can harm the wildlife.

Another application of AI is monitoring the sound and acoustics in real-time, these data are fed and run through various algorithms to identify sounds of exotic species, motor vehicles, chain saws, and gunshots.

A recent article by Anne Casselman on National Geography (published in Nov-2018) clearly states that use of artificial intelligence in combination with RFID (Radio-frequency identification tags) and GPS (Global Positioning System) the identification and counting of wild animals have improved, the error related to duplication and skip counting have reduced almost to zero. With accurate data on a census of wildlife, it helped conservationists in India and Kenya help revive the declining population of Tigers and Zebras respectively.

Thus, AI is not only helping inaccurate census of wildlife but also helps in research, prevention, and identification of wildlife. However, a lot of effort and funding is required for the widespread use of AI in the better conservation and prevention of wildlife.

## 2. Use Cultivated Meat

Memphis Meats, Super meat, Avant Meat, Biftek, Aleph Farms, Shiok Meats are some of the companies that are in the business of lab-grown meat and indirectly helping in the conservation of wildlife. A recent article by Emily Latimer on IMPAKTER (March-2021) gives insight into "clean", "cultivated" or "cultured" meat. On 2nd Dec-2020 Singapore Government had approved lab-grown meat for public intake and sale. Similarly in 2017 Memphis meats received $12 million of funding from Bill Gates and agricultural company Cargill for the development of lab-grown meat. The demand for livestock production is continuously on the rise and by 2050 it will be more than doubled, currently, the livestock sector contributes to 18% of greenhouse gas emissions and this is more than the combined emission from all the transportation sectors. Apart from that 30% of the earth's surface is used by us for livestock farming. The current production of meat is resource-intensive and must be replaced with cultivated meat to save the environment and indirectly will help in wildlife conservation. For example, the production of 1 kg of beef required 15000 liters of water and 15 kg of farm feed.

Looking at the current trend in the future the cultivated meat will replace the existing resource-intensive model of factory meat, thus it not only helps in preventing cruelty on animals but also helps us protect the environment and wildlife indirectly.

**Conclusion**

The current rate of damage to wildlife is irreversible and a larger inclusive effort from Government and people is required for our long-term survival. The rate at which governments are investing in building urban infrastructure same focus, energy, and money they should put into the revival of wildlife to stop the ongoing rate of decline. I suggest widespread use of Artificial intelligence would help in the prevention of large-scale depletion of forest and wildlife. Government should run an awareness campaign and encourage youth to study wildlife and the environment by providing them incentives. On personal front we should limit the use of single use plastic bags, prefer walking or cycling for short distance travel instead of car or public transportation.

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