
TREASURE THE MOST PRICELESS TREASURE: WILDLIFE

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ABSTRACT

This research paper seeks to examine the impact of pollution on animals and wildlife. A clean and healthy environment is a fundamental right for all living beings, and animals, like humans, are equally vulnerable to the harmful effects of environmental degradation. Titled “*Treasure the Most Priceless Treasure: Wildlife*,” the paper highlights how pollution, as a global issue, introduces toxic substances into natural ecosystems, threatening biodiversity and environmental sustainability. The alarming decline in raptor populations and habitat destruction has drawn the attention of researchers and conservationists alike. The paper also addresses human–animal conflicts and emphasizes the importance of community cooperation in conservation efforts. It explores the effects of air, water, household pollution, and global warming, along with their transmission through the food chain. Further, the study analyses landmark case laws, policies such as the National Forest Policy, and the Wildlife Protection Act, 1972, highlighting enforcement gaps and governmental responses. The paper concludes by acknowledging the rapid loss of biodiversity and offering suggestions to protect voiceless species endangered by human activities.

Keywords: Environmental Pollution, Wildlife Conservation, Biodiversity Loss, Human–Animal Conflict, Environmental Law (Wildlife Protection Act, 1972).

INTRODUCTION

“Do not neglect; protect! Slowly see the effect. As the animals reconnect!”

A clean and healthy environment is a basic right for everyone. However, in the process of economic growth that is necessary for our lives, the natural environment is being destroyed and affecting us. Pollution from anthropogenic activities not only affects human health, but also irreversibly damages ecosystems, impacting cultural heritage and agricultural productivity. As we evolve, it is imperative that we respect the planet in this environmental race.

Concern about the environment is increasing year by year, and it has a great impact on people's health and quality of life. Population growth, rapid urbanization, depletion of natural resources, diversity and complexity of pollution sources, and inadequate public awareness and participation are some of the factors that make this even more difficult. Many cities with unacceptable levels of air pollution, contamination of over 350 rivers, municipal solid waste, biomedical waste, electronic waste, and hazardous chemical waste are subject to ongoing action by all stakeholders. These are some of the areas where more work is needed. Such efforts should be based on a comprehensive approach and rapid action in nature.

The introduction of hazardous elements into the environment is *pollution*¹. These harmful materials are called pollutants. Natural pollutants include volcanic ash. Even, human activities can also result in their creation.

Pollutants impair the quality of air, water and soil. Much of what is useful to humans, causes pollution. Cars spew pollutants out of their exhaust pipes. Burning coal for power generation pollutes the air. Industries and households generate waste and sewage that can contaminate land and water. Pesticides — chemical toxins used to kill weeds and insects — seep into waterways and harm wildlife. All organisms, from single-celled microbes to blue whales, depend on the earth's air and water supply. Contamination of these resources threatens all life forms.

Like humans, animals can also suffer health problems from air pollution. Birth defects, disease and reduced fertility have all been attributed to air pollution. Global warming is an

¹ Jerry A. Nathanson, *Pollution*, Encyclopaedia Britannica (Jan. 13, 2026), <https://www.britannica.com/science/pollution-environment>

environmental phenomenon caused by natural and anthropogenic air pollution. Pollution is a global problem. Urban areas are usually more polluted than rural areas, but pollution can spread to remote, uninhabited areas too.

POLLUTION A BONE OF CONTENTION

The word pollution comes from the Latin word “polluere”, which simply means contamination. So, in layman's terms, pollution² pollutes the environment. The presence of contaminants in air, land, and water that can adversely affect living organisms and the environment is known as pollution. It refers to harmful gases, liquids, or other hazardous substances released or introduced into the natural environment. It is also a toxic substance that pollutes the soil and air, a pollutant that makes the environment unsuitable or dangerous, a pollutant or a hazardous substance. Pollution is also the result of activities, that destroy the biodiversity of ecosystems. It also poses a threat to environmental sustainability. The harmful pollutants responsible for polluting the environment, are- nitrogen oxide, Sulphur oxide, mercury, particulate matter, chlorofluorocarbon, volatile organic compounds etc.

Environmental pollution is a major global problem, that poses serious risks to humans and animals. It is defined as the human alteration of the chemical or physical properties of the environment, to a degree, that is, detrimental to living organisms. The speed of urbanization, rapid industrialization and the indiscriminate and inappropriate use of chemicals such as pesticides and drugs have increased pollution and environmental degradation leading to adverse effects on biological health, animals and residue-related problems in foods of animal origin. The recent emergence of environmental toxicity in humans and animals and the detection of chemical residues in food products, with increasing frequency have highlighted, the impact of contamination of food ingredients.

Adverse health effects can be considered as obvious clinical signs and higher morbidity and mortality or as potential or subclinical effects. Pesticide toxicity, plumbism, mercury poisoning and fluoride poisoning are some of the obvious toxic problems commonly encountered. High levels of exposure to pollutants are often associated with chemical residues in animal systems and potential or subclinical effects. These include oxidative stress, immunotoxicity,

²https://oceanservice.noaa.gov/education/tutorial_pollution/welcome.html#:~:text=The%20word%20pollution%20is%20derived,means%20to%20soil%20or%20defile.

carcinogenicity, teratogenicity, and endocrine disturbance.

Wild animals, like their domestic counterparts, are also subject to the adverse effects of pollution. Thin eggshells in birds of prey due to DDT residues, and high mortality of fish and birds due to contamination of aquatic ecosystems by mercury, oil spills or acid rain are some notable examples of the effects of pollution to wildlife.³ Vulture populations in the Indian subcontinent are associated with drug residues. This has attracted the attention of researchers and conservationists due to the dramatic decline in numbers of an important raptor, and leading to ecological degradation.

Besides the harmful effects on the health of animals and wildlife, chemical pollutants also cause public health problems, due to contamination of the human food chain. Noise and other physical pollutants are also believed to have adverse health and psychophysiological effects. This review describes the prevalence, sources of pollution, adverse health effects, and scientific achievements in the field of environmental pollution that are specifically related to animal and wildlife health.

HUMAN ANIMAL CONFLICT

In India, human-animal conflict⁴ manifests across the country in various forms, including the threat of apes in urban centers, the looting of crops by ungulates and wild boar, the destruction of elephants, herds, and human deaths and injuries caused by tigers, leopards and other wild animals. Human-wildlife conflict occurs both inside protected areas and outside protected areas. Conflict intensity is usually greater in areas outside the protected area network, than inside.

Recently, incidents of human-animal conflict have increased greatly. The increase is due to several reasons. Among them, the most important are the population growth of wild animals, the fragmentation of habitats, the absence of food and water in the habitats due to degradation, the disturbance of the corridors due to development. Development changes the way of life, farming, human population growth, etc. Many other reasons include the adaptability of certain

³ D. Swarup & R.C. Patra, *Environmental Pollution and Its Impact on Domestic Animals and Wildlife* (Indian Council of Agricultural Research 2005)

⁴ <https://moef.gov.in/en/division/forest-divisions-2/wildlife-2/introduction/>

animals such as leopards, monkeys, nilgai, bears, etc., which makes them able to live successfully near human habitation.

Human-wildlife conflict is an important part of wildlife management because the cooperation of local people largely depends on getting their support by reducing losses, harm done by wildlife to them and many other species.

An ecosystem is the natural balance between organisms, plants and animals in a particular place. Some species of wildlife depend on specific plants, insects, and organisms for survival. Even a small piece of forest, can have its own complete ecosystem. Just like streams, ponds, lakes, seas, in a given landscape can exist many ecosystems. This is called biodiversity⁵.

Never before has biodiversity faced such destructive forces as in recent years due to human activities. Almost half of what took millions of years to form and develop, has been destroyed by humans in a very short time.

Man-made pollution is one of the main threats to wildlife habitat. People have viewed air, water, and soil as waste receptacles; paying little attention to the ecological consequences of pollution. Wildlife populations are constantly faced with a wide range of pollutants released into the environment.

Over the past 80 years, global chemical production has increased 500-fold, polluting entire landscapes, accumulating in the bodies of animals and plants, and altering and disrupting the DNA of wild in these places. In the seas and oceans, the devastation to marine life is unimaginable. Garbage drifts into rivers and streets, mountains of plastic, garbage and debris, finding their way into the oceans on a daily basis, causing major disruption to coastal ecosystems. Pollution from industrial emissions, traffic and other commercial activities has eroded the ozone layer and altered entire climate patterns. Ecosystems that have survived and thrived through the ages, dependent on climate and seasonal cycles, have completely gone astray.

These destructive human activities caused mass extinction. Up to 30% of mammals, birds and amphibians are threatened with extinction. If global temperatures rise by more than 3.5°C up

⁵ National Geographic Society, *Biodiversity*, Nat'l Geographic (May 7, 2025), <https://www.nationalgeographic.org>

to 70% of the world's known species are at risk of extinction.⁶ The risk of extinction outweighs the success of conservation.

Now, we will discuss about the types of pollution and their effects on animals.

AIR POLLUTION

Not only humans but also animals are affected by the level of air pollution⁷ that can affect the lungs, trigger asthma and cause chronic obstructive pulmonary disease. Air pollution also increases the risk of acute cardiovascular events and the development of coronary heart disease in animals. Several cases of wildlife affected by toxic pollution have been reported in veterinary hospitals in the city.

Studies show that domesticated "indoor" animals have a higher risk of developing tumours when exposed to long-term exposure to polluted air, and the same is true for animals that live and sleep indoors or outside, such as the community's monkeys and cats and dogs⁸. Sled animals such as cows, donkeys, horses, camels and others are greatly affected by air pollution, as they have to be on the road all day to breathe polluted air from surrounding vehicles, around the discharge. Airborne particles have been linked to cardiac arrest in animals, and veterinarians sometimes attribute these deaths to the effects of air pollution. Many heavy metals, toxins, persistent organic pollutants (POPs) and other air pollutants affect wildlife by entering the food chain and damaging supplies and food quality.

Once ingested, many of these pollutants accumulate and are stored in the animal's tissues. When animals are eaten by other animals in the food chain, these pollutants continue to accumulate and increase in concentration. This process is called bioaccumulation⁹. Senior predators such as bears and eagles, among others, are particularly susceptible to bioaccumulation of these types of air pollutants.

⁶ IPCC, *Climate Change 2007: Impacts, Adaptation and Vulnerability*, SPM, at XX (UN Framework Convention on Climate Change, 2007).

⁷ World Health Organization, Air Pollution, https://www.who.int/health-topics/air-pollution#tab=tab_1 (accessed Dec. 16, 2025).

⁸ Pets, street animals suffer as pollution levels rise in Delhi, *Times of India* (Nov. 23, 2024), <https://timesofindia.indiatimes.com/city/delhi/pets-street-animals-suffer-as-pollution-levels-rise-in-delhi/articleshow/115589819.cms>.

⁹ Bernd Streit, *Bioaccumulation Processes in Ecosystems*, 48 *Experientia* 955 (1992).

For example, mercury is worrisome enough, to recommend limiting the frequency of consumption of certain types of fish that may contain high levels of heavy metals.¹⁰ Air pollutants can poison wildlife by disrupting endocrine function, causing organ damage, increasing susceptibility to stress and disease, reducing reproductive success and risk chance of death.¹¹

Changes in the abundance of any species, due to air pollution can significantly affect the abundance and health of dependent species. For example, the loss of some fish species due to higher aluminium content could allow insect populations to increase, which could benefit some insectivorous ducks. But the same loss of fish could be detrimental to eagles, ospreys and many other animals that rely on fish as a food source.

It is difficult to fully understand and appreciate, to what extent, and how these changes will affect other species in the ecosystem, some of which are-

- Change in animal behaviour- pollutants have been shown in a growing number of studies, to cause strange behaviour in animals. Endocrine disruptors, heavy metals, and PCBs, have a direct impact on the mating and social behaviour of animals.
- Illness and death- it is usually indirect, but gradually kills the animal by altering the biological system. Air pollutants impair endocrine function, damage organs, and reduce fertility. Long-term exposure to pollutants can trigger neurodegenerative diseases.
- Loss of Biodiversity- the basic structure and function of ecosystems are altered by air pollution. The deposition of excess nitrogen in the form of ammonia is one of the most important stressors for biodiversity. Biodiversity is important to animals because its loss can lead to changes in food chains and the extinction of some species. In addition, the loss of biodiversity can increase the risk of infectious diseases.
- Change in species distribution- a change in the abundance of a species can be caused by industrial air pollution. For example, increased aluminium levels.

¹⁰ EPA, *What EPA Is Doing to Reduce Mercury Pollution, and Exposures to Mercury* (2025), <https://www.epa.gov/mercury/what-epa-doing-reduce-mercury-pollution-and-exposures-mercury>.

¹¹ R. Relić, *Influence of Environmental Pollution on Animal Health and Wildlife* (2023) (PDF), <https://reference-global.com/pdf/10.2478/contagri-2023-0029>.

- Eat polluting plants- when animals eat plants covered with particles, they become contaminated with arsenic. In pets, lead poisoning causes pneumonia and loss of appetite. In addition, pesticides can cause breathing difficulties, drowsiness, muscle spasms, vomiting and loss of coordination in animals.

WATER POLLUTION

Water pollution¹² harms wildlife. Nutrient-polluted waters cause massive growth of toxic algae that animals ingest, leading to illness and death. Mining operations lead to the weathering of waste rock and ore bodies, creating "acid drainage". Acid mine drainage creates toxic water pollution.¹³

Large amounts of toxic metals are released into the air by industry and automobiles. These toxins settle on the ground and are then transported by rain falling along with the pesticides. "Rainwater overflow" is transported to local drainage systems, streams, rivers, lakes and oceans. It is one of the biggest sources of toxic water pollution

Oil spills kill countless wildlife¹⁴. Oil coats animals' fur and feathers, reducing their insulation properties and exposing animals to deadly toxins. The long-term effects of oil spills are less noticeable, but equally damaging. Toxic chemicals on beaches, in water and in food webs lead to anaemia, reduced resistance to disease, reproductive disorders, cancer, birth defects and nerve damage.

In the coastal belts, where human habitation has peaked in recent decades, indiscriminate dumping of waste, especially plastic, has almost completely wiped-out marine ecosystems off the coast. kilometres. Spectacular creatures such as whales and dolphins, once a common sight for seafarers, have been pushed from their natural habitat into the deep sea - losing their feeding grounds centuries ago.

In enclosed bodies of water such as lakes, pollutants such as oil, detergents, nitrogen and phosphates can wreak havoc on its ecosystem by stimulating the growth of unwanted plant

¹² Jerry A. Nathanson, Water Pollution, Encyclopædia Britannica (Nov. 29, 2025), <https://www.britannica.com/science/water-pollution>.

¹³ A.T. Luis et al., *Extremely Acidic Eukaryotic (Micro)organisms: Life in Acid Mine Drainage Polluted Environments—Mini-Review*, 19 *Int'l J. Env'tl. Res. & Pub. Health* 376 (2021).

¹⁴ National Oceanic and Atmospheric Administration, *Oil Spills*, NOAA Educ. Resource Coll., Ocean & Coasts (2025), <https://www.noaa.gov/education/resource-collections/ocean-coasts/oil-spills>.

species and suffocation, oxygenated water if necessary for the survival of the fish

Most of the debris and pollution found in oceans, rivers, lakes and on beaches comes from land-based sources. Sewage runoff can cause microbial contamination in the water in which wildlife drinks or lives. Seabirds like gulls are at the top of the food chain, so they absorb all the toxins and contaminants from the fish they eat. Bio-accumulative pollutants accumulate in biological tissues. They can be transmitted through eggs or milk to mammals. The pesticide DDT has been banned for agricultural use because it thins the shells of birds' eggs.

Numerous fish died as a result of a hazardous wastewater discharge into the Begul River near Rudrapur, Uttarakhand. Concerns under the Water (Prevention and Control of Pollution) Act 1974¹⁵ and possible legal action from environmental groups were raised when locals and experts connected persistent industrial pollution to ecological harm. Water samples were gathered by authorities, who also pledged to conduct investigations and take severe action against violators.¹⁶

Pollution causes the pH of the water to change, killing aquatic plants that cannot survive in acidic conditions. Chemical pollutants accumulate in the water and plants absorb them. Marine debris that accumulates in the water accumulates near the surface, blocking the sunlight that plants need to generate energy. Lack of light will hinder plants from making glucose, which will slow down their growth. Nutrient contamination can cause dead zones. These are areas in the water with little or no oxygen, creating places where aquatic life cannot survive. Algae blooms can produce toxins that kill fish and other animals. Although the flower is not toxic, it can still harm aquatic life by blocking sunlight.

Animals, including aquatic animals, die when water is contaminated for a variety of reasons. Other animals are under stress and their populations are in danger. In a classic case of recent marine pollution, 16,000 miles of US coastline were affected by the oil spill¹⁷. This water pollution has caused a lot of damage and death of many animals.

¹⁵ Water (Prevention and Control of Pollution) Act, No. 6 of 1974, India Code (1974).

¹⁶ Aakash Ahuja, Chemical discharge poisons Rudrapur river, kills scores of fish, TOI, Dec 29, 2025, 23:55 IST, <https://timesofindia.indiatimes.com/city/dehradun/chemical-discharge-poisons-rudrapur-river-kills-scores-of-fish/articleshow/126237023.cms?>

¹⁷ Deepwater Horizon Oil Spill," *Angola Transparency* (Apr. 20, 2010) <https://angolatransparency.blog/en/how-much-oil-was-spilled-in-the-bp-oil-spill/>.

More than 8,000 animal species (birds, turtles, mammals) are reported to have died just 6 months after the spill, many of which are already on the endangered species list. Immediate impacts on wildlife include oil-covered birds and sea turtles, oil-ingesting mammals, and dead or dying deep-sea coral. Animals are also affected by solid waste thrown into bodies of water, as it harms them in many ways.

LITTER AND HOUSEHOLD POLLUTION

Garbage¹⁸ causes the death of many wildlife species. Toxic waste can be deadly. Getting entangled in trash is a common threat. Tons of plastic waste end up in the oceans, washed off the streets and blown away from landfills. Animals often mistake garbage for food and try to eat garbage, resulting in death. Garbage accumulates in large chunks. Some are transported by currents and washed ashore. Billions of other pieces of plastic are decomposing creating huge swirling patches of trash in the ocean.

Many household¹⁹ products contain toxic metals. Domestic wastewater often carries toxic metals into the aquatic environment. Toxic chemicals used in households are washed down the drain and down the toilet. Even large amounts of solvents, detergents and other chemicals used in industrial activities add toxic pollutants to industrial wastewater.

NOISE POLLUTION

Marine fauna, especially mammals and fish, depends on the sound to all aspects of their lives, including breed, feed, predator avoid and redirect. Sea noise²⁰ has doubled in some regions of the world, per decade, for the past 60 years due to human activities such as navigation, sonar use, coastal fishing and offshore construction, or seismic survey.

Many species are listed in CMS, different from whales and dolphins to fish and turtle; from seals and dugong to polar regions. Bears and their prey struggle with artificial effect noise. Some other species affected indirectly through noise: such as sharks, not themselves are affected, but they prey can be negatively affected. The direct effects of artificial noises that

¹⁸ Pollution: Choking Wild Animals, *Earth & Animals Facts A-Z* (July 22, 2024), <https://www.adoptananimalkits.com/advocate/wild-earth/params/post/1285416/pollution-choking-wild-animals>.

¹⁹ Jutta Gutberlet & Sayed Mohammad Nazim Uddin, Household Waste and Health Risks Affecting Waste Pickers and the Environment in Low- and Middle-Income Countries, 23 *Int'l J. Occup. & Env'tl. Health* 299 (2018), <https://pmc.ncbi.nlm.nih.gov/articles/PMC6147112/>.

²⁰ Jerry A. Nathanson & Richard E. Berg, Noise Pollution, *Encyclopædia Britannica* (Jan. 3, 2026), <https://www.britannica.com/science/noise-pollution>.

species can suffer from many and depends on the nature of the noise. Intermittent noise may include sound ship engines and propellers. The din keeps getting in the way of communication between individuals and their abilities navigating, foraging and spotting threats, increased stress levels and affect physical fitness.

The sound is more abrupt, for example like the collapse of wind farms in seabed or an explosion is triggered handle bombs and bullets underwater. This may cause direct hearing damage animal system, leading to bruising, organ failure and death. Noise has been proven to be deadly for at least some whale species with evidence linking military intensity sonar with the fatal whale stranding. Reduced catch rate from 50-80 per Hundreds of close seismic surveys have also been reported in some species affecting fishing and community activities²¹.

PESTICIDE POLLUTION

Pesticides²² don't just kill pests; they also influence other animals. Insecticides and rat poisons are major pesticides dangerous to birds. Waterfowl and some game birds eat leaves agriculture has the ability exposure risk. Passerines can eat on seeds treated with pesticides. Bird in insectivorous agricultural habitat or animal carcasses may have been poisoned, at special risk.

These substances can be deadly or can lead to decreased mobility, increased susceptible to predation and/or influence guidance during the move. Some pesticides are high risk for birds, such as carbofuran, has been withdraw from the agricultural market too much water. Others see theirs limited use, often out of concern about human health. Recent analyses of The United States indicates that the use of Insecticides highly toxic to the birds may be the most important factors explaining the decline of farmland birds in recent decades.²³

GLOBAL WARMING

According to scientists, global warming²⁴ is not only causing the ice sheets to shrink, but also

²¹ Engås et al., in *A Review of the Impact of Seismic Survey Noise on Narwhal and Other Arctic Cetaceans* 4 (Greenpeace Nov. 7, 2024).

²² United Nations Environment Programme, Pesticide Persistent Organic Pollutants, UNEP (last updated Nov. 27, 2024), <https://www.unep.org/topics/pollution-and-health/persistent-organic-pollutants-pops/pesticide-persistent-organic>.

²³ E.A. Bechard & R.E. Swindle, *Pesticide Acute Toxicity Is a Better Correlate of U.S. Grassland Bird Declines than Agricultural Intensification*, 7 *PLoS ONE* e40861 (2013).

²⁴ Michael E. Mann, Global Warming, *Encyclopædia Britannica* (Jan. 14, 2026), <https://www.britannica.com/science/global-warming>.

increasing the extreme weather patterns that cause heat waves, wildfires and droughts. A polar bear standing on a shrinking iceberg, seemingly stranded, has become a familiar image, a symbol of the devastating impact of climate change.

This picture is somewhat misleading because polar bears are excellent swimmers and climate change will primarily affect them by limiting their access to prey. However, the researchers agree that even small changes in temperature are enough to threaten hundreds of species of animals in difficulty. Up to half of the animal and plant species in the world's richest regions like the Amazon and the Galapagos could be threatened with extinction by the end of this century, according to a study published in the journal *Climate Change*, due to climate change.

The main impact of global warming on wildlife is habitat disruption, in which ecosystems - where animals have spent millions of years adapt - change rapidly, to cope with climate change, reducing the ability of species to meet their needs. Habitat disturbances are often caused by changes in temperature and water availability, affecting native vegetation and the animals that feed on them.

Affected wildlife populations can sometimes migrate to new areas and continue to thrive. But the simultaneous increase in human population means that many lands that could be suitable for such "wildlife refuges"²⁵ are fragmented and already overcrowded with residential and industrial development. Cities and roads can act as obstacles, preventing plants and animals from moving to alternative habitats.

This could even lead to forest fires²⁶. Like all natural disasters today, wildfires are increasingly common across the globe. In recent years, we have seen one tragedy after another play out, such as the 2020 bushfires in New South Wales, Australia²⁷, which killed an estimated 480 million animals. And the North Complex wildfire in California has burned more than 318,000 acres and displaced local wildlife like deer, bears and coyotes.

Unlike humans, who rely on news channels and emergency alerts to warn of an approaching

²⁵ National Wildlife Refuge Association, National Wildlife Refuge Association, <https://www.refugeassociation.org/> (last visited Jan. 7, 2026).

²⁶ Jeffrey Kane, Forest Fire, *Encyclopaedia Britannica* (Dec. 18, 2025), <https://www.britannica.com/science/forest-fire>.

²⁷ A Statement about the 480 Million Animals Killed in NSW Bushfires Since September, *University of Sydney News* (Jan. 3, 2020), <https://www.sydney.edu.au/news-opinion/news/2020/01/03/a-statement-about-the-480-million-animals-killed-in-nsw-bushfire.html>.

wildfire, animals rely on their innate abilities. Many animals use their keen sense of smell and awareness of their surroundings to detect the early signs of a fire, but sometimes there isn't enough time to flee to safety. Small animals such as reptiles and amphibians that cannot escape the fire will take refuge in burrows or under rocks. In other cases, wildlife with their young or animals trapped by man-made structures, such as fences, may not be able to escape. Whether facing wildfires head-on or from a seemingly safe distance, all types of wildlife – mammals, birds and fish – are hit hard by these disasters.

For animals trapped in the path of a wildfire, the effects can be deadly (or debilitating). Dense smoke from fires can disorient animals, sting eyes and make breathing difficult. Burns are extremely painful and can lead to mass deaths of wildlife, as seen with koalas in the Australian bushfires of 2020-2021.

Land animals are not the only ones suffering from the fires, fish and marine mammals are also severely affected. As wildfires burn plastic and unnatural materials, the residues release large amounts of toxins that can contaminate water supplies. Plants burn and break down the brush into nutrients like nitrogen and phosphorus. When rain sweeps high concentrations of these nutrients into aquatic ecosystems, dangerous algal blooms can occur and lead to underwater oxygen loss and dead zones. Like all natural disasters today, wildfires are increasingly common around the world. In recent years, we have seen one tragedy after another play out, such as the 2020 bushfires in New South Wales, Australia, which killed an estimated 480 million animals. And the North Complex wildfire in California has burned more than 318,000 acres and displaced local wildlife like deer, bears and coyotes.

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One of the most dangerous aspects of wildfires is their ability to spread quickly and destroy vital habitat. Wildfires can burn entire forests at a speed of 10 kilometres (6 miles) an hour. Habitat loss has a huge impact on all animals. Species that return to the same breeding and nesting sites each year are particularly at risk from wildfires. In some cases, it can take years for a species to recover from a missed breeding season and re-establish a safe home.

PLASTIC POLLUTION

Plastic pollution²⁹ has such a far-reaching impact, but the effects on wildlife are alarming and sad. There are many ways plastic pollution can happen; people carelessly throw an item to the ground in the wind when lifting items from a recycling bin or landfill. Whether intentional or not, pollution still happens.

Plastic pollution is especially dangerous for wildlife. Discarded plastic can be mistaken for food, especially for marine animals as it floats in the water. Plastic pollution can also damage animal habitats, and if wildlife gets entangled in waste, they can't fend for themselves or defend themselves. What makes plastic pollution so unfortunate is that it is completely preventable. The negative impact of plastic bags on animals and wildlife can harm their ecosystems.

Plastic pollution doesn't biodegrade, so once it's there, it's there forever. Thin plastic, such as disposable plastic shopping bags, can look like jellyfish and that is a serious problem for jellyfish-eating marine animals, as this honest mistake can have disastrous consequences.

²⁸ Evie Dunstan et al., *An Analysis of Demographic and Triage Assessment Findings in Bushfire-Affected Koalas (Phascolarctos cinereus) on Kangaroo Island, South Australia, 2019–2020*, 11 *Animals* 3237 (2021), <https://doi.org/10.3390/ani11113237>.

²⁹ Charles Moore, *Plastic Pollution*, *Encyclopædia Britannica* (Jan. 9, 2026), <https://www.britannica.com/science/plastic-pollution>.

When large chunks of plastic are ingested, they can essentially clog the pet's digestive system, which can lead to death, or plastic pollution will occur, causing pets to have a false sense of satiety. Both of these scenarios can lead to a painful and unpleasant death.

CASE LAW

*Indian Enviro-Legal Action v. Union of India*³⁰

The Supreme Court held that “Enactment of a law but tolerating its infringement is worse than not enacting a law at all... Continued tolerance of such violations of law not only renders legal provisions nugatory but such tolerance by the Environment authorities encourages lawlessness and adoption of means which cannot or ought not to be tolerated in any civilized society... Violation of Anti-Pollution laws not only adversely affects the existing quality of life but non enforcement of the legal provisions often results in ecological imbalance and degradation of environment the adverse effects of which will have to be borne by the future generations.”

*Rajiv Dutta v. Union of India*³¹

Concerned about large scale and unchecked damage being caused by devastating forest fire, an event which takes place annually spreading across the State of Uttarakhand and Himachal Pradesh has shocked the applicant and this inspired him to file this application before the Tribunal under Section 14 & 15 of the National Green Tribunal Act, 2010³². As the respondent has not chosen to take *Suo moto* cognizance of the fires, such events would continue unabated, if not checked. Therefore, the applicant has sought to highlight the issue and to know as to what measures are being taken by the Central Government and the Authorities concerned to prevent further damage and curb such preventable fires. According to the applicant, for forest fire disaster preventive measures needs to be undertaken and it should be ensured that disaster mitigation strategy is provided for future. The court held that despite the National Forest Policy 1988 which in Section 4.8.2³³ acknowledges the high occurrence of forest fires in the country and thereby mandates special precautions to be taken during the fire season through improved and modern management practices, the State authorities have miserably failed in preventing an

³⁰ Indian Enviro-Legal Action v. Union of India, (1996) 5 S.C.C. 281 (India).

³¹ Rajiv Dutta v. Union of India, (2016) PIL No. 68/2018 (India) <http://climatecasechart.com/non-us-case/rajiv-dutta-v-union-of-india/>.

³² National Green Tribunal Act, No. 19 of 2010, §§ 14–15 (India).

³³ Gov't of India, Ministry of Environment & Forests, National Forest Policy § 4.8.2 (1988).

avoidable natural disaster despite the so-called Forest Fire Management Plans being in place with all its attendant components and activities provided therein.

WILDLIFE PROTECTION ACT, 1972

Every year, Earth Day³⁴ is celebrated on April 22. This year, the world celebrates the 51st Earth Day with the theme “Restore our Earth”. India also celebrates this day. But that same year, news of wildlife poaching doubling during India's lockdown was also reported. This makes the subject really real as it shows that we have lost touch with mother earth.

The Supreme Court of India in *T.N. Godavarman Thirumulpad v. Union of India* (2012)³⁵ referred to a quote, “The universe along with its creatures belongs to the Lord. No creature is superior to any other. Human beings should not be above nature. Let no one species encroach over the rights and privileges of other species.” This quote was mentioned for a reason. This is intended to emphasize the primary importance of conserving the environment and its components. Nature is creative and destructive.

According to Charles Darwin, “*only the fittest can survive*”³⁶. As a creator, nature exists through flora and fauna in an ecosystem to support life. However, in recent decades, humans have introduced adverse changes to the existence of flora and fauna.

These are mostly man-made changes that must have interfered with the way nature works. This has led to climate change, changes in the natural habitats of animals and pollution from deforestation, etc.

In the past, there were boundaries between human civilization and flora and fauna. But unusual changes in the environment have now narrowed this boundary, leading to conflict between humans and wildlife. This is why wild animals are now often found wandering outside their habitat. This is because humans have broken the balance of existence.

In India, the conservation and protection of wildlife is continued under the Wildlife (Protection) Act 1972³⁷. The law is a product of a rapidly growing period of environmental jurisprudence

³⁴ United Nations, Earth Day, <https://www.un.org/en/observances/earth-day> (accessed Jan. 1, 2026).

³⁵ *T.N. Godavarman Thirumulpad v. Union of India*, (2012) 4 S.C.C. 362 (India).

³⁶ Charles Darwin, *On the Origin of Species by Means of Natural Selection* 62 (John Murray 1859).

³⁷ Wild Life (Protection) Act, No. 53 of 1972 (India).

in India, driven by judicial activism. The law enacted noted that all previous laws such as the Wild Birds and Animals Protection Act of 1912³⁸ were insufficient. The current law is comprehensive and fills all the gaps that existed in the previous laws.

However, there are still significant gaps in the current legislation. There is a gap between theoretical regulations and practical implementation. Furthermore, the purpose of the law has also been diluted by bureaucratic interference.

The constitutional framework for the protection of wildlife, forests and environment is laid out under Article 21³⁹ of the Constitution of India. The right to life includes the right to live in a clean and healthy environment.⁴⁰

Section 48A⁴¹ of the State Policy Guidelines imposes a non-binding obligation on the State to protect and conserve the environment as well as to protect forests and wildlife. Section 51A(g)⁴² also imposes a non-binding obligation on citizens to protect the country's forests, wildlife, rivers, and animals.

These obligations have been fulfilled by both central and state governments by adding the term "forest" to section 17A and the protection of wildlife and birds under section 17B of the list concurrently by the Constitutional Act. (Revised) 42nd edition in 1976.⁴³

Overview:

The law is a small text of the model law that covers only the birds and animals specified under the law's current schedule. It gives state governments the right to protect and conserve animals and birds under Section 3⁴⁴. It also prohibits the capture, killing, sale, and possession of animals, including their plumage.

Section 4⁴⁵ allows for a Section 3 waiver, only if the state government considers the above measures to be in the interest of scientific research. A person can then be licensed with further

³⁸ Wild Birds and Animals Protection Act, No. 8 of 1912, (India).

³⁹ INDIA CONST. art. 21.

⁴⁰ Subhash Kumar v. State of Bihar, (1991) 1 S.C.C. 598 (India).

⁴¹ INDIA CONST. art. 48A.

⁴² INDIA CONST. art. 51A(g).

⁴³ INDIA CONST. sched. VII, list III, entries 17A–17B (as amended by the Constitution (Forty-Second Amendment) Act, 1976).

⁴⁴ Wild Life (Protection) Act, No. 53 of 1972, § 3 (India).

⁴⁵ Wild Life (Protection) Act, No. 53 of 1972, § 4 (India).

restrictions, if any. Another exception is already in section 3. This exception allows a person to kill or capture animals and give birth to their offspring in self-defence against others, or in the case of property defences.

The Wildlife Protection Act⁴⁶ protects all types of animals, from amphibians to birds, mammals and reptiles under section 2(1)⁴⁷. This definition is comprehensive and may include a wide range of protected animals. The law extends protection to specific trees that cannot be destroyed or damaged without government approval.

Loopholes:

The Wildlife Protection Act, 1972 is comprehensive and covers most aspects of wildlife protection and conservation. The comprehensiveness of the law is reflected in the fact that it allows for the establishment of many committees and agencies with authority to exercise powers with specific objectives such as the Tiger Conservation Authority⁴⁸. It also allows authorization.

But such a distribution of powers between different authorities sometimes creates a problem of accountability because of the dispersion of powers. Too many levels of authority and government tend to dilute the purpose of the law, the more power is divided, the greater the possibility of uncontrolled. It is essential to have a strong regulatory framework at the centre that can create checks and balances in the sub-framework. Because simply forming different committees and assigning tasks to different authorities will not lead to wildlife conservation unless enforcement of the Act is improved. There is also a robust system needed to protect animals from poaching. Also, it is silent about the effect of pollution on animals, and thus needs an amendment.

DATA

1.) Published Field Guide to Tracking Ganges and Indus Dolphins, Aquatic Fauna and Related Habitats:

Dolphins are apex predators underwater and control aquatic systems. Dolphin's act as a patron

⁴⁶ <https://blog.iplayers.in/the-wildlife-protection-act-1972-and-its-impact-in-protecting-wildlife-in-india/>.

⁴⁷ Wild Life (Protection) Act, No. 53 of 1972, § 2(1) (India).

⁴⁸ Wild Life (Protection) Act, No. 53 of 1972, § 38L (India).

species, and their conservation will bring prosperity to the habitat and associated biodiversity, including humans. Dolphin populations are important for zoning important conservation areas, where development can be planned with appropriate mitigation measures, and also for securing the livelihoods of local communities. To date, there is no synchronized census plan, but sporadic censuses have been carried out in the past. For the first time a standardized monitoring protocol was and developed published in October 2021. This will be used for synchronized dolphin counting exercise to be done in the states of Assam, West Bengal, Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Rajasthan and Punjab⁴⁹. Dolphin estimation is an important process and a building block of the "Dolphin Project".

2.) Publishing a Guide to Sustainable Ecotourism in Forests and Wildlife Areas 2021:

The ministry issued “Guidelines for Sustainable Ecotourism in Forest and Wildlife Areas-2021⁵⁰” on October 2, 2021. These guidelines apply to ecotourism sites located within forests, wildlife areas and ecologically sensitive areas. Due to the need for a participatory approach to the conservation of wildlife and their habitats, the guide emphasizes local community involvement in ways that enrich the local economy and encourage sustainable use of indigenous materials through a financially viable value chain to support local communities to become '*Atma Nirbhar*'⁵¹ and foster stakeholder partnerships in ecotourism development as well as sharing benefits fairly with the local community. The creation of a foundation in each protected area and revenue sharing with the local community is also emphasized in the guide.

3.) Wildlife Week Celebrations 2021:

To spread conservation ethics among the public, Shri Narendra Modi, Honourable Prime Minister of India, sent a message on the occasion of Wildlife Week 2021. On the occasion of Wildlife Week 2021 (October 2-8, 2021), Gandhi Jayanti and MoEFCC's iconic Azadi ka Amrit Mahotsav Week Announcement, Shri Bhupender Yadav, Honorary Minister of the MoEFCC

⁴⁹ Ministry of Environment, Forest and Climate Change, Government of India, Annual Report 2021–22 (2022), <https://moef.gov.in/uploads/2022/03/Annual-report-2021-22-Final.pdf>.

⁵⁰ Government of India, Ministry of Environment, Forest and Climate Change, Guidelines on Sustainable Ecotourism in Forest and Wildlife Areas 2021 (Oct. 29, 2021), <https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Department%20Wing/Wildlife/29.10.21%20Guidelines%20on%20sustainable%20Eco-Tourism%20in%20Forest%20and%20Wildlife%20Areas%202021.pdf>.

⁵¹ Press Information Bureau, Ministry of Environment, Forest and Climate Change, Government of India, We Are Trustees Not Owners Says Union Environment Minister at the Launch of ‘Azadi Ka Amrit Mahotsav-Iconic Week’ of the Ministry (Oct. 2, 2021), <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1760326®=3&lang=2>.

EF&CC, together with Shri Ashwini Kumar Chaubey, Minister of Foreign Affairs Hon Le'ble, EF&CC and other senior Ministry officials launched the 'India for Tigers' Rally on Wheels on 2nd October, 2021. Activities such as painting contests, webinars, documentaries, wildlife photography contests, and more. aimed at raising awareness among the people, especially students, has been supported all week across the country in hybrid mode, according to the COVID protocols.

4.) Indo-German technical cooperation project on reducing human-wildlife conflict in India:

India's National Wildlife Conflict Reduction Strategy and Action Plan (HWC-NAP)⁵² and four additional frameworks have been announced by Shri Ashwini Kumar Choubey, Minister of External Affairs, MoEFCC on October 8, 2021 in Delhi. HWC-NAP and its complementary frameworks were developed by MoEFCC with support from GIZ and WII, within the framework of the Indo-German Technical Cooperation Project⁵³ on Reducing Human-Wildlife Conflict in India. Common frameworks for developing state and ministerial plans are being used to develop state plans for Karnataka, Uttarakhand and West Bengal and ministerial plans for project pilot sites, to ensure alignment between national planning and actual implementation.

Following data includes the total expenses by the State and Union Territories under CSS- 'Integrated Development of Wildlife Habitats'⁵⁴ in past five years (Rs. in lakhs):

| S. no. | Year | Amount |
|--------|---------|------------|
| 1 | 2016-17 | 8994.54814 |
| 2 | 2017-18 | 14927.9603 |
| 3 | 2018-19 | 16500.00 |

⁵² Ministry of Environment, Forest and Climate Change, *National Human-Wildlife Conflict Mitigation Strategy and Action Plan of India 2021-26* (2021), <https://moef.gov.in/uploads/2022/01/National-Human-Wildlife-Conflict-Mitigation-Strategy-and-Action-Plan-of-India-2.pdf>.

⁵³ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, *Human-Wildlife Conflict Mitigation in India (Indo-German Technical Cooperation Project)* (2020), <https://www.indo-germanbiodiversity.com/pdf/publication/publication09-05-2020-1589016221.pdf>.

⁵⁴ Ministry of Environment, Forest and Climate Change (MoEFCC), *Wildlife (WL)*, <https://moef.gov.in/wildlife-wl> (last visited Jan. 5, 2026).

| | | |
|---|---------|-------------|
| 4 | 2019-20 | 12448.42614 |
| 5 | 2020-21 | 8761.324971 |

CONCLUSION

An ecosystem is the natural balance between organisms, plants and animals in a particular place. Some species of wildlife depend on specific plants, insects, and organisms for survival. Even a small piece of forest can have its own complete ecosystem. Just like streams, ponds, lakes, seas, in a given landscape can exist many ecosystems. Never before has biodiversity faced such destructive forces as in recent years due to human activities. Almost half of what took millions of years to form and develop has been destroyed by humans in a very short time.

Man-made pollution is one of the main threats to wildlife habitat. People have viewed air, water, and soil as waste receptacles, paying little attention to the ecological consequences of pollution. Wildlife populations are constantly faced with a wide range of pollutants released into the environment.

Pollution comes in many forms and affects many different organisms. The effects of land, air and water pollution on animals and birds can be devastating. Environmental pollution caused by human activities contributes to the decline of many endangered species, and has adverse effects on people, fisheries and tourism.

Wildlife is exposed to more pollution than previously thought. Our air, water, land and wildlife are polluted with thousands of chemicals that we cannot see, smell or touch. Unsurprisingly, this overlooked pollution is not considered a major threat to wildlife, as it should be.

Human activity and disturbance outweigh wildlife, even impacts human-dominated landscapes, habitat and predators. Human interference and contamination from various sources can affect wildlife behaviour, that negatively impacts wildlife populations and leads to the decline of many populations of direct and indirect species. When advancing in technology every day, humans are changing the environment, harming both animal and plant species. People occupy more space on the planet for their homes and cities. So, animals and plants suffer for their survival on earth. It is estimated that more than two-thirds of animal and plant species once lived together. Harmonies in nature are now extinct and some are even

endangered.

Man should control his activities, beyond the limits. It has a negative effect on other organisms and, it should stop disturbing other living species before they become extinct. This is a need so that animals can live in harmony with us without compromising their needs. Human management should aim to reduce human-wildlife conflict, to protect other living things, the safety of animal populations, habitats and biodiversity and also to minimize property damage.