Wildlife Conservation in India

Wildlife means all the flora and fauna, which are not domesticated by humans. It includes animals, plants and microorganisms. Wildlife tours in India is your chance to explore some of the well known tiger reserves and national parks sprinkled across different parts of the country. Last few decades have seen emergence of human encroachment to an extent that has never been seen. This is one of the greatest threat to India's wildlife. In order to overcome the result of human encroachment many national parks as well as protected areas have been established so far and the first came in 1935. Also in 1972, to protect the tiger and wildlife in India, the Wildlife Protection Act and Project Tiger to safeguard were enacted.

More Wildlife Conservation Projects and Programs

To promote wildlife awareness among the people, the Indian government has started various natural projects and programs such as Project Tiger, Nature Camps and Jungle Lodges. These projects not only help to preserve our natural heritage, but encourage eco-tourism as well. Project Tiger was formed in 1972 and launched on the 1st April 1973 at Corbett National Park. Till date, the project has been the most successful one in preserving the tiger population at Tiger Reserves in Bandhavgarh, Corbett, Pench, Ranthambhore, Kanha, Bandipur, Panna, Dudhwa, Sunderbans, Manas and Sariska. All these reserves act as Conservation Centers for tigers in India.

Besides, there is the Gir National Park, the only habitat for Asiatic lions in India. The Kaziranga Wildlife Sanctuary is Assam is renowned for protecting the endangered one-horned Rhinoceros. There's also Dachigam National Park, which conserves the Hangul or Kashmiri Stag. Project Elephant, a centrally sponsored scheme, was launched in February 1992 to provide financial and technical support to major elephant bearing states in India for protection of elephants, their habitats and corridors. The Project, involving 25 Elephant Reserves across the country, is being implemented in 13 States and Union Territories in India, namely, Andhra Pradesh, Arunachal Pradesh, Assam, Jharkhand, Karnataka, Kerala, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttaranchal, Uttar Pradesh and West Bengal.

The NGOs - There are also various NGOs working on wildlife conservation in India such as Wildlife Society of Orissa (Orissa), Rhino Foundation for Nature (Assam), Friends of Forests (Maharashtra), North Eastern Society for Preservation of Nature and Wildlife (West Bengal), Nature's Beckon (Assam),

Nature Conservation Society Amravati (Maharashtra), The Friends of the Doon (Uttaranchal) and Bali Nature and Wild Life Conservation Society (West Bengal).

- **Gir National Park, Gujarat-** Asiatic Lion that is close to extinction is found in the GIr National Park, Gujarat.
- **Kaziranga Sanctuary in Assam -** Kaziranga Sanctuary in Assam has been established to protect the endangered Rhinoceros.
- **Periyar in Kerala -** At Periyar, Kerala Wild elephants are preserved.
- **Dachigam National Park-** Efforts are made to save Kashmiri Stag

Wildlife Sanctuaries in India

3.29 million sq. km of area comes under the wildlife conservations efforts in India and it is becoming a very popular wildlife holiday destinations both for Indian as well as International tourists. At present there are more than 500 **wildlife sanctuaries in India** and seventeen Biosphere Reserves.

Popular Wildlife Sanctuaries in India

- Bandhavgarh National Park in Madhya Pradesh
- Corbett National Park in Uttar Pradesh
- Gir National Park & Sanctuary in Gujarat
- Kanha National Park in Madhya Pradesh
- Kaziranga National Park in Assam
- Periyar Wildlife Sanctuary in Kerala
- Sariska Wildlife Sanctuary in Rajasthan
- Sunderbans National Park in West Bengal

Biosphere Reserves

Government of India has initiated an effort to conserve wildlife, both flora and fauna including human communities living under Biosphere Reserves. Biosphere Reserves are actually the areas defined by the Government of India for protecting the above said in their natural habitat. There are seventeen Biosphere Reserves in India at present. Achanakmar-Amarkantak, Agasthyamalai, Dibru Saikhowa, Dihang Dibang, Great Nicobar, Gulf of Mannar, Kachchh ,Kangchenjunga, Manas, Nanda Devi, The Nilgiris, Nokrek, Pachmarhi, Simlipal, Sundarbans, Cold desert, seshachalam hills

Wildlife in India

India is a home to rich and diverse wildlife tours because of her wide range of climate, soil, weather and other such factors. Owing to such diversity, equal number of rare as well as threatened animals and plants are found that need to be protected. This leads to the need of much greater wildlife conservation efforts in India. As per the survey India is a home to about 60-70% of the total biodiversity found across the world and about 33% of plant species are endemic. There are 172, or 2.9%, of IUCN-designated threatened species in India. Under this comes the Asiatic Lion, the Indian white-rumped vultures and the Bengal Tiger. This further enforces the need of right wildlife conservation efforts in India.

Importance of Wildlife Conservation

Due to the growing impact of deforestation, continuous efforts are being made by some anxious animal lovers to protect the endangered species of wildlife as well as those that are on the verge of extinction and thus save the world from running out its green heritage. Wildlife is important for four main reasons:

- **Beauty:** By their unique way of existence, wild creatures exaggerate the natural beauty of the earth.
- **Economic value:** The financial value of wild species is important to the economies of several nations, as it provides many valuable substances like wood and other plant products, fibers, meat and other foods, and skins and furs.
- **Scientific value:** By studying wildlife, scientists have gained valuable knowledge about various life processes and discovered important medical products
- **Survival value:** Wildlife helps in maintaining the balanced living systems of earth, which consequently ensures survival of life.

National Parks of India

First national park of India was established in 1935 under the name of Hailey National Park that is now known as Jim Corbett National Park. Till 1970 there were only five national parks in India but the number rose to 96 by April 2007

History of Conservation in India

Conservation in India found its roots when the killing of animals were strictly prohibited in and around the Ashramas (hermitages) allotted to Brahmanas. Around the third century BC, the founder of the Mauryan empire—Chandragupta

Maurya, appointed a Kupyadhyaksha or Forest Department Head. This officer was in charge of implementing the Game Laws laid down in the manuscript known as the Arhtashastra written by Kautilya, the then Prime Minister of the Mauryan Empire. This in effect became the first official administrative document to spell out wildlife conservation measures.

Chandragupta's grandson Ashoka, besides implementing the written laws on wildlife conservation in letter, went one step further and implemented it in spirit too. He is known to have done much for the promulgation of Buddhism during his reign, ahimsa and the non violence against all beings, animals included, is well known. His penchant for wildlife also extended to art and aesthetics, evident from examples such as the Lion Capital of Ashoka pillar in the present day Uttar Pradesh, where four lions with their back to each other can be found atop the pillar.

Some Maharajas and Nawabs maintained an entire corp of shikaris mainly comprised of local tribal's with an intricate knowledge of the jungle and its inhabitants. A Mir-Shikari or expert hunter would often head this group. An invitation by the provincial ruler to hunt game within their district was seen as a bonhomous gesture towards the colonists. This misplaced camaraderie between the colonist and the princes resulted in irreversible damage to India's wildlife.

It was then that several animals were pushed towards their last existing refuge examples of which are the sole surviving Asiatic lions population in Gujarat and the one horned rhinoceros in North-East India. It was under these circumstances that India's first National Park, the Hailey National Park (Jim Corbett National Park) was founded in 1936, in no small measure due to the efforts of hunter turned conservationist and naturalist-Jim Corbett.

Post-independence, the first genuine need to protect wildlife in India was realized. In 1952, the Indian Wildlife Board was constituted to centralize all the rules and regulations pertinent to wildlife conservation in India, which until then deferred from state to state. In 1956, this Board passed a landmark decree that accorded all existing Game Parks the status of a Sanctuary or a National Park. The 1960's expose by Rakesh Sankhla and Razia for the Indian Express detailed the appalling abyss that wildlife conservation had sunk to when they exposed the trade in several hundred skins of endangered species. The need for wildlife conservation now made the shift from the government and policy makers to the general public at large.

The 1970's bought with it two landmark events that were to influence wildlife conservation in India for decades to come. The first was the introduction of the

stringent Wildlife Protection Act in 1972 and the second being Indira Gandhi, the then Prime Minister of India, doing everything within her power to protect wildlife in India. Project Tiger, the largest wildlife conservation project of its time, was initiated in 1973 under her watch.

In the 1980's, the Chipko Andolan movement by the Bishnois gained worldwide recognition for its simplicity and non-violent approach. What the Bishnois did was to surround their trees, literally hugging them, in order to protect them from anyone who came to fell them. Until today, they are involved in actively protecting blackbucks and other wildlife found in their region.

The last two decades since the 1990's have witnessed the application of technology and science to conservation on a large scale. Wildlife forensics, telemetry, remote sensing techniques and geographic information systems were all integrated into the practice of wildlife conservation in India.

Conservation has evolved from an informal practice providing arbitrary protection to wildlife to its present avatar as a practiced art and science. If ever the need to evolve and expand it beyond its present realms was of prime necessity-then the time is now.

WILDLIFE CORRIDOR

A **wildlife corridor**, **habitat corridor**, or **green corridor**[1] is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging). This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity (via genetic drift) that often occur within isolated populations. Corridors may also help facilitate the re-establishment of populations that have been reduced or eliminated due to random events (such as fires or disease).

This may potentially moderate some of the worst effects of habitat fragmentation,[2] wherein urbanization can split up habitat areas, causing animals to lose both their natural habitat and the ability to move between regions to use all of the resources they need to survive. Habitat fragmentation due to human development is an ever-increasing threat to biodiversity, and habitat corridors are a possible mitigation.

PURPOSE

The main goal of implementing habitat corridors is to increase biodiversity. When areas of land are broken up by human interference, population numbers become

unstable and many animal and plant species become endangered. By re-connecting the fragments, the population fluctuations can decrease dramatically. Corridors can contribute to three factors that stabilize a population:

- **Colonization**—animals are able to move and occupy new areas when food sources or other natural resources are lacking in their core habitat.
- **Migration**—species that relocate seasonally can do so more safely and effectively when it does not interfere with human development barriers.
- **Interbreeding**—animals can find new mates in neighboring regions so that genetic diversity can increase and thus have a positive impact on the overall population.

TYPES

Habitat corridors can be categorized according to their width. Typically the wider the corridor, the more use it will get from species. However, the width-length ratio, as well as design and quality play just as important of a role in creating the perfect corridor (Fleury 1997). The strip of land will suffer less from edge effects such as weeds, predators, and chemicals if it is constructed properly. The following are three divisions in corridor widths:

- **Regional** – (>500m wide); connect major ecological gradients such as migratory pathways.
- **Sub-regional** – (>300m wide); connect larger vegetated landscape features such as ridgelines and valley floors.
- **Local** – (some <50m); connect remnant patches of gullies, wetlands, ridgelines, etc.

ECOTOURISM

Eco-tourism is not merely a catch phrase. It is more than just a word as far as nature loving travel is concerned. Eco-tourism aims at **preserving the diversity of the natural and cultural heritage** of the world. In places where it operates, it accommodates guests in a way that offers minimum destruction to the environment and sustains the local culture. Eco-tourism is not the responsibility of the service providers solely. It requires participation of the travellers as well.

Eco-tourism also aims at generating the tourism related income of the locals. The revenue that is generated from tourism motivates the government to fund training

programs and conservation projects. Eco-tourism is all about saving the surrounding environment and conserving the luxuries of nature and forest life. It is the responsibility of the traveller not to create disturbances in the normal life cycle of nature. No matter whether you are camping at a natural camp or trekking in a less explored region, you should not indulge in any sort of mishap.

The main focus of eco-tourism lies on **local culture, personal growth, wilderness adventure and new ways of living on the planet**. It indulges in programs that result in least adverse effects on natural environment and enhances the local culture. It promotes programs like energy efficiency, recycling and water reuse.

The eco-tourism policies are formulated by people for varied fields of life including Wildlife Management, Geographic Information Systems, Women in Development, Marine Biology, Environmental Sciences, Wildlife Photography, National and State Park Management, Historians and several others.
With an annual growth rate of 5 % across the globe, eco-tourism is regarded to be the **fastest growing market**in the industry of tourism today.

CASE STUDIES OF ECOTOURISM:- CLICK HERE

ECONOMICS OF WILDLIFE

Wildlife tourism is a growing phenomenon, particularly in emerging economies such as India. Purported benefits of this growth in tourism include greater tourist interest in, and support for, conservation. We examined the interest, awareness and potential for this support in three prominent Indian national parks, Nagarahole, Kanha and Ranthambore. Park records indicate that most tourists (71%) are Indian nationals. Our surveys of 436 Indian tourists indicate that many were on their first visit to the park (71%) and are well educated (82% with bachelor and master degrees). Most tourists (88%) visited for <1 week and spent <USD 600 on their visit. The main reasons for visiting parks were opportunities to see nature, tigers *Panthera tigris* and scenic beauty. Seventy-one percent of tourists indicated they are likely or somewhat likely to return to the parks but only 34% would be willing to visit the parks if tigers are absent. Forty-two percent indicated willingness to pay higher gate fees. Surprisingly, those spending less on their trip were more willing to pay higher fees than those spending more. Sixty-five percent believed that local people benefit from the park, whereas in reality local benefits are few. Our results indicate the potential for the growth of domestic wildlife tourism and support for conservation among tourists but highlight the need for

increasing education and awareness on the difficult realities of conservation in India.

Principles supporting ecotourism suggest a commitment to social responsibility and nature conservation. While nature conservation often appears obvious the social responsibility of ecotourism operations is not as apparent. On one hand, the task of nature conservation is entirely the responsibility of the protected area (PA) manager whereas, on the other, contribution to conservation through sharing of benefits with the community living around the PA should be a mandate of the tourism industry. In this research note, we have tried to examine whether the tourism industry in and around Kanha Tiger Reserve, India, is contributing to conservation by securing sustainable livelihoods for the local people. There is an urgent need for a national ecotourism policy that would ensure sharing of benefits and thus foster less dependence on forest resources.

Government Incentive Programs for wildlife conservation

In 1894, Rudyard Kipling's famous collection of stories got published and the rest is history. Kipling's incisive eyes and 6 years of hard work not only created a composition that excited kids but indirectly boasts the rich wildlife in India. Even though it was just a fable it did show the diversity of animals in the country. To really talk about diversity, India is one of the 17 mega diversities in the world and is home to 7.6% of all mammal, 12.6% of bird, 6.2% of reptile, and 6.0% of flowering plant species. The country also has some of the most biodiverse regions on the planet and it comprises of four of 35 biodiversity hotspots of the world like the Western Ghats, the Eastern Himalayas, Indo-Burma and Nicobar Islands in Sundaland. So far, the country's wildlife is preserved in 120+ national parks, 515 wildlife sanctuaries, 26 wetlands, and 18 Bio-Reserves, out of which 10 are part of the World Network of Biosphere Reserves. Evidently, this large biodiverse land needs protection, and inarguably conservation is a mandatory measure.

Keeping in view the recent human encroachment, the Indian Government did take effective initiatives to conserve wildlife in the country, and amongst it, most commendable initiatives is the Wildlife Protection Act of 1972, which prohibits trade of rare and endangered species. However, this is not the only laudatory measure taken by the Government of India (GOI), there is so much more that needs to be told about the schemes and projects that have helped the country maintain its rich wildlife. Here is a glance at the important wildlife conservation initiatives that GOI has taken:

Important Wildlife Protection Projects by Indian Government

Project Tiger

One of the most successful wildlife conservation ventures 'Project Tiger' which was initiated way back in 1972, has not only contributed to the conservation of tigers but also of the entire ecosystem. This project is sponsored by Ministry of Environment Forest and Climate Change. About 47 tiger reserves situated in more than 17 regions including Corbett National Park and Ranthambore National Park are part of this project which conducts assessments of number of tigers, their habitat, hunting habits under the supervision of the Tiger Task Force. Project Tiger has seen significant success in recovery of the habitat and increase in the population of the tigers in the reserve areas, from a scanty 268 in 9 reserves in 1972 to above 1000 in 28 reserves in 2006 to 2000+ tigers in 2016.

Project Elephant

Initiated in 1992 by the Government of India Project Elephant aims at conserving elephants and their habitat and of migratory routes by developing scientific and planned management measures. Under the project welfare of the domestic elephants is also considered, issues like mitigation of human-elephant conflict are

also taken care of. The project's endeavour is to strengthen the measures for protection of elephants against poachers and unnatural death.

Crocodile Conservation Project

This project is yet another successful venture by Government of India to conserve the Indian Crocodiles, whose species were on the verge of extinction once. The project also contributes towards the conservation in a plethora of related fields. The main objectives of the crocodile project is to protect the remaining population of crocodiles and their natural habitat by establishing sanctuaries; to promote captive breeding; to improve management; and to involve the local people in the project intimately. It is worth noticing that with the initiation of Crocodile Conservation Project, 4000 gharial/aligator, 1800 mugger/crocodile and 1500 saltwater crocodiles could be restocked.

UNDP Sea Turtle Project

With an objective to conserve the Olive Ridley Turtles, the UNDP Sea Turtle Project was initiated by Wildlife Institute of India, Dehradun as the Implementing Agency in November 1999. The project is for 10 coastal state in India especially Odisha where it has contributed towards the preparation of a map of breeding sites of Sea Turtles; identification of breeding places and habitats along the coast line, and migratory routes taken by Sea Turtles. The project also helped in the development of guidelines to safeguard the turtle mortality rate and for tourism in sea turtle areas. Amongst the major achievements of the project is the demonstration of use of Satellite Telemetry to locate the migratory route of sea turtles in the sea.

Apart from these projects, GOI also has been handling projects like Vulture Conservation and India Rhino Vision (IRV) 2020.

Steps Taken By Indian Government to Protect Biodiversity

Along with above specified conservation projects of the wild animals, GOI has also initiated few schemes that are worked upon to protect the biodiversity and minimize the mortality of critically endangered, endangered and threatened animals. Here are few important steps that Government of India has taken for the wildlife protection:

- In the Wildlife Protection Act of 1972, GOI created Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves for the wildlife and imposed punishments on those indulged in illegal act of hunting.
- Wetland (Conservation and Management) Rules 2010 have been drafted to protect of wetlands in India. The Central Government has also initiated the scheme, National Plan for Conservation of Aquatic Eco-System that lends assistance to the states for the sound management of all wetlands.
- In order to curb the illegal trade of wildlife and that of endangered species, Wildlife Crime Control Bureau has been established.
- Special organizations like Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are formed to conduct research on conservation of wildlife.
- To check the dwindling population of Gyps vulture in India, Government of India has banned the veterinary use of diclofenac drug.
- For restocking of the endangered species, the Central Government first initiated Integrated Development of Wildlife Habitat Scheme and later modified it by including a new component, Recovery of Endangered Species which included animals like Hangul/stag deer in Jammu & Kashmir, Vultures in Punjab, Haryana and Gujarat, Snow Leopard in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Swiftlet in Andaman & Nicobar Islands, Nilgiri Tahr in Tamil Nadu, Sangai Deer in Manipur. Financial and technical assistance is also extended to the state government to provide better means of protection and conservation for the specified species.
- The State Governments have been asked to strengthen the field formations and increase patrolling in and around the Protected Areas.
- GOI intensified anti-poaching activities and initiated special patrolling strategy for monsoon season. Also, deployment of anti-poaching squad.
- In order to strengthen tiger conservation, National Tiger Conservation Authority is constituted by Government of India.
- A Special Tiger Protection Force (STPF) has also been constituted and is deployed in Karnataka, Maharashtra and Odisha.
- E-Surveillance has been started in Kaziranga National Park in Assam and borders of Ratapani Wildlife Sanctuary in Madhya Pradesh.

Important Environment and Biodiversity Acts Passed by Indian Government

- Fisheries Act 1897
- Indian Forests Act 1927
- Mining And Mineral Development Regulation Act 1957
- Prevention of Cruelty To Animals 1960
- Wildlife Protection Act 1972
- Water (Prevention and Control of Pollution) Act 1974
- Forest Conservation Act 1980
- Air (Prevention and Control of Pollution) Act 1981
- Environment Protection Act 1986
- Biological Diversity Act 2002
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006

Not only this, there are a few International schemes and projects that India has signed drafted with its neighbours, Nepal and Bangladesh related to illegal wildlife species trade and conservation of tigers and leopards. Apart from this, there are plenty of other legal, administrative and financial steps that Government of India has taken for effective wildlife conservation in the country. And apparently the success of its some projects and schemes related to Indian Rhinos, tigers and poaching have earned it immense confidence to continue working towards a prosperous and intact wildlife.

12 Innovative Ways Technology is Saving Endangered Species

1. Better Mapping and Visualization:

Google Earth has proven itself to be more than just a way to make maps or get directions, it's become a real tool for the conservation and preservation of species and habitats. New species have been discovered by scientists browsing the globe and endangered species and their vital habitats are being protected by organizations

using this powerful software as a mapping and visualization tool to illustrate the threats to their survival.

2. Smart Collars for Endangered Species:

We've got smart phones and smart meters and smart grids, and now biologists will have new "smart collars" that use GPS and accelerometer technology to track not only a wild animal's location but also how it is moving, when it is hunting, what it is hunting - in other words, these collars can tell us its every move. Researchers hope that by knowing exactly what certain species of animals are up to, they can understand them much more thoroughly - and possibly even predict behavior and reduce human-animal conflicts, revolutionizing the way we interact with and manage wildlife.

3. Remote Control Photography and Video:

© *William Burrard-Lucas*

For learning about the needs and risks of endangered species, getting up close and recording the details of wildlife in their natural habitat can be essential - and problematic, due to the difficulty of getting clear access without exposing our own presence. But thanks to ideas like the BeetleCam, observing some kinds of animals is getting easier. Conservation photographer Will Burrard-Lucas has created a high-tech solution to help get him amazing images that would otherwise be impossible.

4. Remote Monitoring of Wildlife Sounds:

Researchers have created a new computer technology that can listen to multiple bird sounds at one time, and identify which species are present and how they may be changing, due to habitat loss or climate change. This system could provide an automated approach to monitoring bird species, instead of having a field researcher doing direct observation. The researchers believe the technology can work not only for birds, but for many forest sounds, including species like insects and frogs, and perhaps even marine mammals.

5. Remote Controlled Sampling:

mikebaird/CC BY 2.0

If you want to take a sample from a very large animal, a whale, for instance, a team of scientists at ZSL Institute of Zoology have come up with a way to use a remote controlled helicopter to make that happen. Typically, tissue samples come at the cost of injury or invasive contact with whales. But rather than via blood, tissues can also be collected via blow-hole air, which is rich with, well, whale snot. The team came up with the non-invasive method of hovering a 3-foot remote controlled helicopter over a whale pod with petri dishes strapped to the bottom that can collect samples when a whale exhales.

6. Texting Elephants:

Derek Keats/CC BY-SA 2.0

Another version of the smart collar is one being used with elephants in Kenya to help ease human-animal conflicts there. The collars contain a mobile SIM card capable of sending text messages with the animal's location for tracking their movements, and in the future may be able to 'warn' local farmers that the elephants are approaching their fields through a text message.

7. High-Tech Fish Hooks:

A new high-tech magnetic fish hook, the SMART hook, could help keep sharks safer from fishing lines. The new hooks have a special metal coating that produces a voltage in seawater, and because sharks are highly sensitive to electric fields in the water, the SMART hook (Selective Magnetic and Repellent-Treated Hook), will help keep sharks away from the fishing lines intended for other species of fish.

8. Gene Sequencing:

When endangered species are threatened by disease, being able to isolate the unaffected individuals for breeding is now getting an additional technological boost. Scientists are now using high-tech gene sequencing machines in a desperate attempt to save the Tasmanian devil from an infectious cancer called devil facial tumor disease that is threatening to wipe out the species.

9. Beehive Fences:

In some places, the interactions between farmers and elephants are getting a little bit easier, thanks to another species, the honeybee, and some innovative thinking. A fence made of beehives, strung together by wires, has been shown to be effective against elephants that have become a nuisance by raiding farmers' crops.

10. Remote Measurement Tools:

Getting up close to some species, such as sharks, to get precise measurements for conservation and research efforts, is a tricky business. But with some high-tech tools, such as a stereo-camera system for studying sharks, scientists are now able to take these measurements with great accuracy, without actually being in contact with the animal at all.

11. Conservation Drones:

Not all drones are for the military. An ecologist and a biologist have created a conservation drone complete with cameras, sensors and GPS to map deforestation and count orangutans and other endangered species in northern Sumatra. Their $2,000 creation can be used for both monitoring and tracking long-term changes as well as providing real-time video and data feeds.

12. Predictive Analytics for Wildlife:

IBM has created a new predictive analytics software that can be used to collect huge amounts of complex information about wildlife - such as what people think about them, where the animals are located, why they are hunted, how everything from education level to access to medicines impacts their decisions - and figure out the best areas to focus conservation efforts. This high-tech software might be a big key to saving some species.

We're living in exciting times, as our technology is starting to enable us to come up with better solutions for conservation. Many of these ideas for helping to save endangered species have a common theme - using the data gathering and remote-operating possibilities in our hardware for better monitoring and observation - but there are also decidedly simple ones, such as the beehive fence, which is not only an example of an "appropriate technology", but one which also serves a dual purpose, by providing a place for keeping bees.

Threats to Wildlife

When we expand our territories, we invade wildlife's territories. When forests are cleared and fields subdivided, wildlife is affected. Some species that can not evade bulldozers, like salamanders and turtles, may die outright. Others, like birds and some mammals, are forced into adjacent patches of habitat. That habitat may not be suitable for them to survive. Then we force our wildlife to navigate onto roads, across power lines, and around wind turbines.

- Habitat Loss
- Climate Change
- Invasive and Exotic Species
- Pollution
- Illegal Trapping and Poaching
- Accidental Deaths

HABITAT LOSS

Habitat loss is the destruction of habitat. Habitat fragmentation is the degradation, destruction, or alteration of once continuous habitat when we alter and "chop up" the environment. Humans are the main cause for the loss of habitat. Wildlife that used to live there are usually displaced or killed. It is the leading cause for the loss of species from extinction.

CLIMATE CHANGE

Climate Change or global warming is the overall increase in average temperatures on Earth. The rate of warming has increased dramatically due to the increased outputs of greenhouse gases (particularly carbon dioxide) since the industrial revolution. Its effects on wildlife are dramatic. Entire populations will be effected. Many species are already in jeopardy of becoming extinct, like the Polar bear. Other species will have to adapt to a warmer planet. It is believed that many ecosystems will shift north. Our climate in New Jersey will be like the climate in South Carolina if nothing is done to reduce our impact on our planet. Climate change may also significantly alter the chemical balance of the seas, off-shore currents, and plankton distribution and abundance, thereby affecting migration routes of marine species and impacting the entire food web.

INVASIVE AND EXOTIC SPECIES

Invasive and exotic species are species that were introduced to North America that reduce biodiversity of native species. Many exotics were accidentally introduced

during the colonial times when many plants (from other continents) were used as packing materials on ships. Animals from other continents may have also hitched a ride in those same ships or they were intentionally brought to North America. Invasive plants choke out natives and do not provide the same functions in the ecosystem. Exotic species can wreak havoc on native populations of wildlife by displacing them or altering their habitat.

POLLUTION

Pollution is man-made waste or by-products that are released into the environment. Pollutants can change ecosystems and can have severe effects on people, wildlife and the natural environment. Many organisms ingest or absorb harmful toxins that ultimately get passed along through the food chain. Persistent pollutants, like DDT, PCBs, and heavy metals bio-accumulate (are stored in fat) in predators. All of the effects, especially over the long-term, are unknown. In many species bio-accumulation can be associated with reduced reproduction or death.

ILLEGAL TRAPPING AND POACHING

Illegal trapping, poaching, and other demands for wildlife are a huge problem throughout the world. Many species are sought for their use as valuable products. Snakes are sought for their skins, elephants for their ivory tusks, and birds for their feathers. Wildlife are also trapped or taken from wild populations to be sold or bred in the pet trade. The worldwide demand for pets and medicinal products drives the illegal trade of wildlife, especially rare species. Sadly enough, wildlife trafficking is thought to be one of the most profitable illegal trades in the world.

ACCIDENTAL DEATHS

Accidental deaths and collisions pose considerable threats to vulnerable species. An unknown number of deaths are caused by this worldwide. Accidental entanglement in fishing nets and collisions with ships pose major threats to marine mammals, especially whales. Vehicles strike birds and other wildlife when driving along roads. Large buildings, towers, and wind turbines also injure or kill many different species of wildlife.

WILDLIFE POLICIES AND LAW

- This was the first Act enacted in 1873:
- This was the first wildlife legislation in Modern India wildlife legislation in Modern India
- Govt. of India enacted the Elephant Govt. of India enacted the Elephant Preservation Act 1879

- The Indian Forest Law Act VII enacted in The Indian Forest Law Act VII enacted in 1878
- The Indian Forest Act enacted in 1927
- The Wildlife (Protection) Act enacted in 1972

FOR FURTHER DISCREPTION:- CLICK HERE

RESEARCH IN WILDLIFE

Research directly relevant to management of wildlife and their habitats is an important focus of the Department. Departmental faculty work closely with stakeholders in Florida and elsewhere to pursue important applied research questions using approaches integrating modeling and empirical approaches. Examples of programs:

- Effects of forest management activities on wildlife (Dr. Holly Ober). This research evaluates the ways that disturbance events can alter composition and age structure of forest vegetation, which in turn influences resource availability for wildlife. Projects include evaluation of the influence of timing and frequency of prescribed burning in pine forests on bat communities, and the short- and longterm influence of repeated pine straw harvest on arthropod abundance and community composition.
- Integration of wildlife management and land use practices (Dr. Bill Giuliano). This research focuses on biological and socio-economic aspects of wildlife and their management in actively managed environments, such as working ranches, and focuses on integration of wildlife management and other land-uses, particularly agriculture. Specific projects include the influences of fire and roller chopping on wildlife, the ecology of bobwhite quail in Florida, and nesting habitat selection of turkeys.
- Population ecology of mammals (Dr. Madan Oli). This research program integrates field data and models to address basic and applied ecological questions. Projects include application of partial life cycle models to population dynamics and evaluation of the demographic mechanisms underlying population dynamics of natural populations.
- Ecology of introduced animal populations (Dr. Mike Moulton). This work focuses on the ecology of introduced vertebrates, with special interest in introduced birds and lizards. Specifically, questions concerning why some

species tend to succeed in most places where they have been introduced whereas others tend to fail, and why species introductions tend to succeed in some places but not others are considered. Projects include biogeography and community ecology of introduced geckos in Florida and spread of the Eurasian Collared Dove, and numerous species of introduced parrots in Florida.

- Cervidae Health Research Initiative (Dr. Samantha Wisely). This initiative seeks to promote interdisciplinary science, education, and outreach that increase the health and production of captive cervids in a sustainable manner and promotes the health of native wildlife and the ecosystems in which they live.