

Tiger protection and antipoaching operations:

The illegal demand for body parts and derivatives of tiger outside the country continues to be a serious threat to wild tigers. Therefore, protection is accorded topmost priority in Project Tiger / NTCA. The States are engaged in an ongoing manner through the NTCA Headquarters as well as its Regional Offices, while issuing alerts, besides closely working with the CBI, Wildlife Crime Control Bureau and the Police Departments. The following actions are taken in this context:

1. Alerting the States as and when required
2. Transmitting backward / forward linkages of information relating to poachers
3. Advising the States for combing forest floor to check snares / traps
4. Performing supervisory field visits through the National Tiger Conservation Authority and its regional offices
5. Providing assistance to States for antipoaching operations
6. Using information technology for improved surveillance (e-Eye system) using thermal cameras launched in Corbett
7. Launching tiger reserve level monitoring using camera trap to keep a photo ID database of individual tigers
8. Preparing a national database of individual tiger photo captures to establish linkage with body parts seized or dead tigers

Due to concerted efforts under Project Tiger, at present India has the distinction of having the maximum number of tigers in the world at 2,967 (SE range 2,603 to 3,346) as per 2018 assessment, when compared to other tiger range countries. Tigers were observed to be increasing at a rate of 6% per annum in India when consistently sampled areas were compared from 2006 to 2018.

Estimation of tiger population:

The process of estimating the number of tigers in a given area is called 'Tiger census'. It is conducted at regular intervals to know the current tiger populations and population trends. Besides estimating the number of tigers the method also helps to gather information on the density of the tiger populations and associated prey. The most commonly used technique in the past was 'Pugmark Census Technique'. In this method

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the imprints of the pugmark of the tiger were recorded and used as a basis for identification of individuals. Now it is largely used as one of the indices of tiger occurrence and relative abundance. Recent methods used to estimate the numbers of tigers are camera trapping and DNA finger printing. In camera trapping, the photograph of the tiger is taken and individuals are differentiated on the basis of the stripes on the body. In the latest technique of DNA finger printing, tigers can be identified from their scats.

2.Project Elephant:

Project Elephant Launched in – 1992 to assist states having free ranging populations of wild elephants to ensure long term survival of identified viable populations of elephants in their natural habitats. Mainly implemented in 13 States/UTs – Andhra Pradesh, Arunachal Pradesh, Assam, Jharkhand, Karnataka, Kerala, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttaranchal, UP and WB. Small support to Maharashtra and Chhattisgarh. States were provided both financial and technical assistance.

Objectives

1. To protect elephants, their habitat & corridors
2. To address issues of man, animal conflict
3. Welfare of domesticated elephants

Aim

1. Restoring the natural habitats of elephants.
2. Addressing man and elephant conflict
3. Developing scientific and planned management measures for conservation of elephants.
4. Protecting the elephants from poachers and other unnatural causes of death
5. Preventing illegal ivory trade.
6. Researching on issues related to elephant
7. Crating public awareness and education programs for it.
8. Eco-development and Veterinary care for the elephants.
9. Maintaining health care and breeding of tamed elephants.

◆.....◆ **Elephant Corridor**

Stretch/narrow strips of forested land that connects larger habitats with elephant populations and forms a conduit for animal movement between the habitats. This movement helps in enhancing the species survival and birth rate. In India – 88 identified elephant corridors. Of total only 70% used by elephants. 1/3rd – ecologically high priority and 2/3rd –medium priority. Fragmentation of elephant habitat severity in following order – Northern WB → NW India → NE India → central India. South India – least fragmented because 65% corridors in south are protected areas or in reserved forests.

Threats to elephant corridors

1. Primary threat – Habitat loss.
2. Fragmentation and destruction of habitat due to developmental activities like construction of buildings, roads, railways, holiday resorts and the fixing solar energized electric fencing, etc.
3. “single biggest threats” in central India – Coal mining and iron ore mining
4. Mineral-rich states Orissa, Jharkhand and Chhattisgarh also have the highest number of elephant corridors in the country, which makes them known for elephant-man conflicts.
5. Poaching for extremely valuable elephant ivory
6. Non-accommodation of grazing grounds results in searching for food elsewhere which lead to them to crop fields and resulting in man animal conflict.

Mitigation

1. Fusion of the corridors with nearby protected areas wherever feasible.
2. In other cases, declaration as Ecologically Sensitive Areas or conservation reserves to grant protection.
3. Securing a corridor and Habitat restoration if needed.
4. Sensitizing local communities to the option of voluntarily relocation outside the conflict zones to safer areas.



Monitoring of illegal Killing of Elephants (MIKE) Programme

Project Elephant has been formally implementing MIKE (Monitoring of Illegal Killing of Elephants) programme of CITES in 10 Elephant reserves since January 2004. It is mandated by COP resolution of CITES. It was started in South Asia in 2003 with the following purpose –

1. To measure levels and trends in illegal hunting of elephants.
2. To determine changes in these trends overtime.
3. To determine the factors causing or associated with these changes and to try and assess in particular to what extent observed trends are a result of any decisions taken by the Conference of the Parties to CITES.
4. Data are collected from all sites on monthly basis in specified MIKE patrol form and submitted to Sub-Regional Support Office for South Asia Programme in Delhi who are assisting Ministry in implementation of the programme.

Haathi mere Saathi

No-no not the above movie. We are talking about campaign which was launched by the Ministry of environment and forests (MoEF) in partnership with the, wildlife trust of India (WTI).

Why launched?

To improve conservation and welfare prospects of the elephant –India's National Heritage Animal launched at – “Elephant- 8” Ministerial meeting, Delhi in 2011. E-8 countries are India, Botswana, Republic of Congo, Indonesia, Kenya, Sri Lanka, Tanzania and Thailand.

Aim – Increasing awareness among people and developing friendship, companionship between people and elephants.

The campaign Mascot “Gaju”

1. Focuses on – target audience groups including locals near elephant habitats, youth, policy makers etc.
2. It envisions of setting up of Gajah (Elephant) centre to spread awareness on their plight and invoke people's participation in addressing the threats to them.

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3. It also plans to build capacity of [protection and law enforcement agencies at the ground level, and advocate for policies favouring the elephants.
 4. Elephant task force (ETF) campaign to "Take Gajah (elephant) to the Prajah (people)" aims to spread awareness and encourage people's participation in elephant conservation and welfare.

Elephant – 8 Ministerial Meeting

The E-8 ministerial meeting represented regions with all 3 species of elephants –

1. Elphas maximus (Asian elephant)
2. Loxodonta Africana (African Bush elephant)
3. Loxodonta Cyclotis (African forest elephant)
4. Participants include – policy makers, conservationist, scientists, historians, art and culture experts among the participating countries.

Discussions were under 3 basic themes

1. Science and conservation
2. Management and conservation
3. Cultural and ethical perspectives of conservation

E-8 countries resolved to –

1. Take necessary steps in the direction of elephant conservation.
2. To actively pursue a common agenda to ensure a long-term welfare and survival of all species of elephants in all range countries.
3. To realize this goal meeting has called all range countries to join hands under umbrella of elephant 50:50 forum.

E-50:50 forum

It is the share vision of 50 states to promote conservation, management and welfare of elephants in next 50 years. 1st international congress – New Delhi (2013) – for adopting a common global vision of conservation, management and welfare of elephants across all range countries

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Gaj Yatra:

‘Gaj Yatra’, a nationwide campaign to protect elephants, was launched on the occasion of World Elephant Day in 2017. The campaign is planned to cover 12 elephant range states. The elephant is part of India’s animal heritage and the Government celebrates this day to spread awareness about the conservation of the species. The 15 months campaign will be led by the Wildlife Trust of India (WTI). The campaign aims to create awareness about elephant corridors to encourage free movement in their habitat.

3.PROJECT RHINO

Launched in 2005, Indian Rhino Vision 2020 is an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020. Seven protected areas are Kaziranga, Pobitora, Orang National Park, Manas National Park, Laokhowa wildlife sanctuary, Bura chapori wildlife sanctuary and Dibru Saikhowa wildlife sanctuary. The greater one-horned rhinoceros (*Rhinoceros unicornis*) is listed as Vulnerable on the IUCN Red List of Threatened Species. Rhinoceros unicorn is has been listed in CITES Appendix I since 1975. Close to 85% of the total population occurs in India, with about 75% in the state of Assam. The Indian and Nepalese governments have taken major steps towards Indian Rhinoceros conservation, especially with the help of the World Wide Fund for Nature (WWF) and other non-governmental organizations

Indian Rhino Vision (IRV) 2020 is a partnership between:

1. The Assam Forest Department,
2. The Bodoland Territorial Council,
3. The World Wide Fund for Nature (WWF),
4. The International Rhino Foundation (IRF), and
5. The US Fish and Wildlife Service.

Translocations are the backbone of the IRV 2020 program. Manas National Park was selected as the first site for translocation of rhinos. Ten Rhinos have been released into Manas since 2008. Ten more rhinos will be moved from Kaziranga National Park

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before the end of the year. Translocating rhinos will help to create a viable population of this threatened species.

Facts on threats

1. The extent and quality of the rhino's most important habitat, alluvial grassland and riverine forest, is considered to be in decline due to human and livestock encroachment
2. The Indian rhinoceros once ranged throughout the entire stretch of the Indo-Gangetic Plain, but excessive hunting and agricultural development reduced their range drastically to 11 sites in northern India and southern Nepal
3. As a result of habitat destruction and climatic changes their range has gradually been reduced so that by the 19th century, they only survived in the Terai grasslands of southern Nepal, northern Uttar Pradesh, northern Bihar, northern Bengal, and in the Brahmaputra Valley of Assam.

National Rhino Conservation Strategy

1. Recently, the government of India has also launched the National Rhino Conservation Strategy for India.
2. It called for active engagement between India and Nepal to protect the species.
3. The plan said the single population of rhinos in Sukla-Phanta (Nepal), Valmiki Tiger Reserve (India) and Chitwan National Park (Nepal) and Dudhwa (India) is separated by the political boundary between the two countries.
4. Instead of managing the two populations separately in the two countries, it needs to be managed with the same protocol.
5. The strategy would pave the path for long-term conservation of rhinos.

4. Project Snow Leopard: Jan 2009

Snow Leopard is globally endangered species as well as the most important flagship species of the mountain region. Project aims to conserve biodiversity with community participation. The project will be operational in five Himalayan States viz. Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh with active

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support from wildlife institute of India and the Mysore based Nature Conservation Foundation.

The project stresses on a landscape approach to conservation wherein smaller core zones with relatively conservation values will be identified and conserved with support and the larger landscape will be managed in such a way that it allows necessary development benefits to the local communities. The project thus places greater importance to careful and knowledge-based management planning of the landscapes.

Threats: It is threatened by poaching for their fur, habitat destruction by infrastructure developments and climate change competition on livestock degradation and even facing local extinction.

Why to conserve the high-altitude ecosystem?

1. The high altitudes of India (> 3000 m) (including the Himalaya and Trans-Himalaya biogeographic zones) support a unique wildlife assemblage of global conservation importance.
2. This includes highly endangered populations of species such as the snow leopard, two species of bears, wolf, red panda, mountain ungulates such as the wild yak, chiru, Tibetan gazelle, Tibetan argali, Ladakh urial, two species of musk deer, the hangul, three species of goral, serow, and takin, etc. High altitude lakes and bogs provide breeding grounds for a variety of avifauna including the black-necked crane, bar headed Geese, Brahminy ducks, and brown-headed gulls, etc.
3. India has ratified international agreements promoting the conservation of high-altitude wildlife species such as the snow leopard.
4. In 2003, the Convention on Migratory Species included the snow leopard as a Concerted Action Species under its Appendix I.
5. Similarly, in 2003, the Convention on International Trade in Endangered Species (CITES) expanded the scope of the CITES Tiger Enforcement Task Force to include all Asian big cat species including the snow leopard.

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Initiatives:

Snow Leopard is found in 11 countries such as Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia, Tajikistan, and Uzbekistan. These countries formed the Global Snow Leopard Forum (GSLF) and signed the Bishkek Declaration to acknowledge its importance as the indicator of the health and sustainability of mountain ecosystems. It is the State animal of Himachal Pradesh.

Protection Status:

It has been listed in Schedule I under Wildlife (Protection) Act 1972, Appendix I of Convention on International Trade of Endangered Species (CITES) and Appendix I Convention on Migratory Species (CMS). In September 2017, International Union for Conservation of Nature (IUCN) had downgraded conservation status of snow leopard to “vulnerable” from “endangered”. It is National Heritage Animal of Pakistan and Afghanistan.

5.Project Sea Turtle:

A significant proportion of world's Olive Ridley Turtle population migrates every winter to Indian coastal waters for nesting mainly at eastern coast. Implementation by – MoEFCC & UNDP in 1999 with wildlife institute of India Dehradun as implementing agency.

Objective – Conservation of Olive Ridley turtles and other endangered marine turtles. The project being Implemented in 10 coastal states of the country with special emphasis in State of Orissa.

The project has helped in –

1. Preparation of inventory map of breeding sites of Sea Turtle.
1. Identification of nesting and breeding habitats along the shore line.
2. Migratory routes taken by Sea Turtles.
3. Development of guidelines to safeguard and minimize turtle mortality.
4. Development of national and international cooperative.
5. Collaborative action for Sea Turtle Conservation.

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Indian crocodile conservation project:

Implemented by – Government of India and UNDP. Launched in – 1975. This project had saved crocodiles from extinction and placed them on good path of recovery.

Objectives

1. Protect the remaining population of crocodilians in their natural habitat.
2. To rebuild natural, population quickly through 'grow and release' or 'rear and release technique'.
3. To promote captive breeding.
4. To take-up research to improve management.
5. To build up a level of trained personnel for better continuity of the project.
6. To involve the local people in the project intimately.

6.PROJECT VULTURE:

Vulture in India

India has 9 species of vultures in the wild. They are the –

1. Oriental White-backed Vulture (*gyps bengalensis*)
2. Slender billed Vulture (*gyps tenuirostris*)
3. Long billed Vulture (*gyps indicus*)
4. Egyptian Vulture (*Neophron percnopterus*)
5. Red Headed Vulture (*Sarcogyps calvus*)
6. Indian Griffon Vulture (*Gyps fulvus*)
7. Himalayan Griffon
8. Cinereous Vulture (*Aegypius monachus*) and
9. Bearded Vulture or Lammergeier (*Gypaetus barbatus*).

Decline of vulture populations 1st recorded at – Keoladeo Ghana National Park, Rajasthan. *Gyps* genus – 97% decline by 2005. Nepal and Pakistan also faced declines.

In India – White-backed Vulture (endangered), Slender billed Vulture and Long Billed Vulture declined. Red-headed vulture or king vulture, Slender billed Vulture and Long

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billed Vulture –critically endangered. Reason for decline was considered as decline in food availability or viral epidemic disease but it was due to drug Diclofenac.

Diclofenac Sodium as the Probable Cause

A non-steroidal anti-inflammatory drug (NSAID) administered to reduce inflammation and to reduce pain in certain conditions. Diclofenac was given to cattle's for reducing pain. The carcass of these cattle was eaten by Vultures. Vultures were unable to break down the chemical diclofenac and suffer from kidney failure (NSAIDs are associated with adverse kidney (renal) failure which is caused due to the reduction in synthesis of renal prostaglandins)“Neck drooping” – this behavior of vultures just weeks before collapsing from trees is sign or indication that birds are ill. Neck drooping is also reported in healthy birds under hot conditions.

Alternative of Diclofenac – Meloxicam

Meloxicam is a second generation NSAID. And rated Better than Diclofenac for the treatment of livestock, with reduced risk of side effects. Also approved for human use in more than 70 countries included in India and USA.

Diclofenac is banned but it is still in use. How's that's possible?

Indian government had banned it for use on cattle's. But it is not banned for human use and so same is used for cattle's. Human form of diclofenac is cheaper than Meloxicam

Significance of vultures in India

1. Keeps environment clean – by scavenging animal carcass.
2. Parsi community's religious practice of disposing dead bodies
3. Primary removers of carrion in India and Africa.

Without vultures:

Equilibrium between populations of other scavenging species will be affected. Result in increase in putrefying carcasses. Increasing risk of spread of Rabies and Anthrax – Movement of Feral dogs into carcass dumps. Traditional custom of the Parsis of placing their dead in the “Towers of Silence” for vultures to feed upon will be affected.



Life will be much harder for local hide and bone-collectors, who rely, on cleaned carcasses in order to earn living. Cattle owners will have to pay to have livestock carcasses buried or burnt.

Conservation of vultures

Vulture safety zones (VSZ)

Aim – To establish targeted awareness activities surroundings 150 km radius of vultures’ colonies so that no diclofenac or the veterinary toxic drugs are found in cattle carcasses, the main food of vultures (to provide safe food).

Zones

- Corbett to Katriya Ghat Slender-billed vulture and white-backed vulture. Marshy grassland, Savannas and forests.
- Dibrugarh (Assam) to North Lakhimpur (Arunachal Pradesh) Slender billed and white backed species of vulture
- Central India covering Chhattisgarh, where white-backed and long-billed vultures are found.

How VSZ can be helpful?

Safe source of food that is free of contamination from veterinary drugs, poisons and other agricultural chemicals. A place where vultures can feed free from human disturbances. Supplement the ever-decreasing food base for vultures. Increase their breeding success because of food availability. An economical and practical way of disposing of old and unproductive cattle. Help to reduce the risk of spreading diseases. A place for scientists to study the biology and ecology of these threatened species. An opportunity to raise public awareness on vulture conservation and to raise funds. An excellent opportunity for eco-tourists to observe these magnificent birds.

Vulture restaurants

At this restaurant, tables are reserved only for the unique and rare vultures by Maharashtra and Punjab forest departments.

Aim

1. Conserve the fast dwindling vulture population
2. Diclofenac free carcasses of cattle.
3. Involvement of local communities in in-situ conservation.
4. People inform the forest department in case of the death of an animal in their village and the department tests the dead animal for presence of diclofenac.
5. In their absence the department pays monetary benefits to the owner of the animal and informer, transports it to the vulture restaurant.
6. Whenever a vulture nesting is found, conservation measures like providing safe food near nesting trees, constant protection ... from all sorts of disturbances, etc., are put in place without delay.

Benefits

1. Conservation of vulture from extinction
2. Community participation in conservation
3. Economic incentive to local cattle breeders
4. Phasing out the use of diclofenac
5. Awareness
6. Dining spots
7. Punjab – Kathlore, Chandola and Chamraur
8. Maharashtra – Gadchiroli, Thane, Nagpur, Nashik, Raigad districts

Breeding Centers in India

Vulture Breeding and Conservation Centre had already been established at – Pinjore, Haryana in Rani, Guwahati (Assam) Buxa, West Bengal, Junagadh Bhopal, Hyderabad, Bhubhaneshwar

India's Role in Conservation

India moved a motion in IUCN in,2004 for vulture conservation, which was accepted in the form of the IUCN resolution.

This resolution called upon Gyps Vulture Range countries to begin action to –

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1. Prevent all uses of diclofenac in veterinary applications.
 2. Establishment of IUCN South Asian Task Force under the auspices of the IUCN and range countries to develop and implement national vulture recovery plans, including conservation breeding and release.

7. Project Hangul

1. The Kashmir stag also called Hangul is a subspecies of Central Asian Red Deer native to northern India.
2. Implemented by WWF, IUCN, Jammu and Kashmir government.
3. It is the state animal of Jammu & Kashmir.
4. In Kashmir, it's found in Dachigam National Park at elevations of 3,035 meters.
5. These deer once numbered from about 5,000 animals in the beginning of the 20th century.
6. Unfortunately, they were threatened, due to habitat destruction, over-grazing by domestic livestock and poaching.

8. Gangetic Dolphins:

1. The Ministry of Environment and Forests notified the Ganges River Dolphin as the National Aquatic Animal.
2. The River Dolphin inhabits the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh.
3. It is estimated that their total population is around 2,000 and they are listed in Schedule I of the Wildlife Protection Act (1972).
4. The Ganges Dolphin is among the four “obligate” freshwater dolphins found in the world — the other three are the ‘baiji’ found in the Yangtze River (China), the ‘bhulan’ of the Indus (Pakistan) and the ‘boto’ of the Amazon River (Latin America).
5. Although there are several species of marine dolphins whose ranges include some freshwater habitats, these four species live only in rivers and lakes.

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Questions:

1. What is biodiversity conservation? Explain the insitu conservation briefly.
2. Explain the methods to conserve the species outside the natural host.

