

Knowledge: a multidisciplinary e-journal

ISSN: 2581-3471

Website: <https://www.vivekanandacollegeforwomen.org/ejournal>

**Causes and concern for faunal habit of Pench Tiger Reserve: a
brief overview**

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Abstract

Indiscriminate use of forests and its wildlife over a long period of time by humans has resulted in tremendous biodiversity loss. A lot of floral and faunal species are becoming endangered due to deforestation and environmental degradation. To save the remaining forests and wildlife various conservation measures are being taken up by the Forest Department. India is regarded as one of the mega biodiversity countries for its rich fauna and flora. But the conservation measures are not properly implemented for lot of interference from its ever increasing population around the forest areas. During visit to Pench Tiger Reserve in Maharashtra, it is noticed that a lot of interference is causing stress on the floral and faunal components of the Tiger Reserve.

Keywords: *Biodiversity loss, deforestation, interference, stress*

Introduction

From time immemorial human beings are dependent on the nature and natural resources. But indiscriminate use and over exploitation of natural resources is threatening the existence of both floral and faunal species. Habitat fragmentation, habitat destruction, illegal trade, introduction of exotic species and diseases are the main reasons of threat to biodiversity, resulting in endangering and even extinction of some species ([wiki/Human_impact_on_environment](https://en.wikipedia.org/wiki/Human_impact_on_environment))¹. This situation has led to initiation of conservation measures in order to save our biodiversity (sciencing.com)², (nature.com)³.

Groombridge & Jenkins⁴, emphasized that forests play a significant role in maintaining the world's biodiversity as they provide habitat for more than half of the world's species. They also said that a reduction in forest area leads to fragmentation of habitat and imposes a significant pressure on the biodiversity. So habitat destruction is probably the single most important threat to wildlife. India occupies unique geographic position on the world map and is one of the 12 mega-biodiversity countries of the world, representing 10 bio-geographic zones and 4 biodiversity hotspots. So efforts are being taken to save the rich Indian biodiversity.

I had the opportunity to visit Pench Tiger Reserve as a part of Educational Field Tour with the students of my Department. However I noticed human interference as the main issue affecting the biodiversity there.

This paper is mainly focussed to highlight the nature of interference and the stress it causes on the faunal habitat of a forest. This not only interferes with their habitat, prey base, and freedom of movement, but also causes man-animal conflict, which often results in casualties for our faunal diversity. Probable methods of minimizing the interfering factors causing stress are also suggested.

Pench Tiger Reserve, Maharashtra, India

Pench National Park, Maharashtra was declared a Tiger Reserve in 1999. It is the smallest and 25th Tiger Reserve of India, covering an area of 257 sq. Kms. (Jha & Joshi)⁵. Though small, it is beautiful and plays a pivotal role by connecting Pench, Kanha, Bori-Satpura and Tadoba-Andhari Tiger Reserve, along with connecting the tiger populations of Nagzira and Bor-Wildlife Sanctuaries. Pench river passes through the centre of the reserve dividing it into almost two equal parts and they are called East and West Pench, and the Reserve is named after it (wiki/Pench-National-Park)⁶. The Pench River serves as a true lifeline for animals and humans inside the reserve. These forests are contiguous with the Pench Tiger Reserve of Madhya Pradesh and constitute a single vast wilderness area. This contiguity of habitat facilitates the free and unobstructed movement of wild animals such as tigers and gaur which are to an extent migratory in nature (Jha & Joshi)⁵. About 33 species of mammals, 164 species of birds, 10 species of amphibians, 30 species of reptiles and a wide variety of insects are said to inhabit in Pench Tiger Reserve.

As our visit was during the last week of October, i.e. 29th October to 2nd November, 2015, it was just the beginning of winter season and after monsoon. So we saw the lush green

vegetation around. Our staying area was at the Eco-Tourism Hut, Amaltas after entering from Sillari gate, inside the buffer zone of the forest. The morning safaris were cool and had a chill factor which stated the coming of winter. However the days were warm as soon as the sun appeared.

During safari we saw a large number of birds and other animals. Insects sighted during safari include Giant wood spider, Dragon fly, yellow fancy butterfly and black widow spider. About 20 species of avian fauna were sighted during safari which includes Malabar Pied Hornbill, Lesser Golden Back Woodpecker, Pond Heron, Thick-knee, Rufous Treepie, Alexandrine Parakeet, White Bellied Drongo, White Rumped vulture, White Throated Kingfisher, Crested Serpent Eagle, Indian Roller, Hoopoe, Red Watted Lapwing, Green Bee Eater, Black Drongo, Plum Headed Parakeet, and Racket Tail Drongo etc. Among mammals Langur, Barking Deer, Spotted Deer, Wild Pig, Wild Dog, Nilgai, Sambar Deer, Gaur (Indian Bison) may be mentioned. Floral variety mainly included white coloured gum trees, along with teak, saja, lendia, dhaora, bamboo, khair, bael, kusum, banyan, peepal, arjun, behra, and mahuwa.

However the most disheartening fact is that lot of developmental activities are going on around the Tiger Reserve resulting a threat to the existence of wildlife. These developmental activities, if continued, can harm our faunal diversity in the long run and they will face severe challenge for their existence.

Factors for concern and causes

- ❖ India is a country where half the people live in villages, and these villages are often located around the fringe areas of the forest with no clear demarcation of the forest areas. These villagers depend on the forest for almost everything, food, fodder for cattle, and woods for fuel and also as a means of livelihood. So unknowingly they create a lot of pressure on the flora and fauna of the forest. The Reserve can be approached from Sillari Village which is 8 km from NH 6 (Pouni Gate) and our staying area was at the Eco-Tourism Hut, Amaltas after entering from Sillari gate, which is very much within the area of the forest. One village, Fulzari, is within the core area (National Park) of the Tiger Reserve and 39 villages are on the fringe area of the reserve. Two forest villages, Alikatta and Chhendia were relocated in 1992 and 1994 to Durgapur and Khairanji respectively (Jha & Joshi)⁵. Villages as Kolutmara, Narhar and Ghatpendhari are located outside the park but they are totally dependent on the core area of the tiger reserve for roads and communication, causing a lot of disturbance to flora and fauna. And like most

forest reserves, PENCH is also facing problems of human-wildlife conflict. Almost complete dependence of the villagers of Fulzari village on the forest resources of the reserve lead to frequent confrontation with the forest staff. Frequent attacks by the fishermen on the forest patrolling staff are also a cause of concern. Villages around it are inhabited by people of the Gond tribe and Korku (informed by our guide). Most of them are small farmers and labourers. Non-tribal population consists of traders and contractors.

- ❖ Other private hotels have also come up around this area and still construction is going on for others. The constant movement of vehicles and people always disturb the serenity of the forest.
- ❖ Although agricultural fields of Alikatta are now over-run by grass and converted to meadows making them excellent habitat for tiger (Jha & Joshi)⁵, but it is now the common meeting point of the park where all the safari vehicles assemble for, during the morning drive disturbing the wild fauna.
- ❖ An important human-made feature of the PENCH Tiger Reserve is the huge dam named “Meghdoot Jalashaya” was constructed at Totladoh fed by the river PENCH, with the purpose of generating power and to store water for the benefit of downstream human and animal populations. But during the construction of the Totladoh Dam and Hydro-electricity Project tremendous disturbance and human pressure was inflicted on the reserve leading to loss of biodiversity. Around 23 sq. km. of the total area is under the Totladoh reservoir (Jha & Joshi)⁵. The Maharashtra Irrigation Department and Madhya Pradesh Electricity Board also have their residential colonies inside the core area of the reserve with almost 300 people residing in them for maintenance of Totladoh dam and Power Generation plant.
- ❖ Illegal fishing in the Totladoh reservoir is the biggest pressure. Most of the people who were resettled from the Totladoh village are still engaged in illegal fishing activities in the reservoir. Fishing along lower PENCH also disturbs wild animals coming to drink water during summer season.
- ❖ Another major pressure on the fringe area is from illegal grazing leading to loss of habitat for the wild herbivores, as the cattle population of these villages is quite high. Often cattle grazing inside the reserve are lifted by tigers and leopards igniting the villagers. Crop-raiding by wild animals ignites the villagers, who remain vigilant at night

and in early hours of morning to scare away crop-raiding animals by employing a number of crude methods and noises, disturbing the total jungle.

- ❖ Another aspect is the non-existence of proper employment opportunities leading to seasonal agricultural works, illegal fishing in the Totladoh reservoir, collection of minor forest produce such as tendu, gum, mahua, lac, fuel wood and also unemployed youth indulges in poaching of wildlife or helps other poachers.

Possible ways of reducing the stress on existing biodiversity

Rudyard Kipling's famous 'The Jungle Book' is said to have been written with Pench Tiger Reserve as the backdrop (Jha & Joshi)⁵. After surviving through many ups and downs over the period of time, it is one of the only three areas in Maharashtra that support viable populations of the tiger. So for conservation of biodiversity, a lot of methods are being implemented.

- **Wildlife Management-** To ensure a viable population of breeding tigers, the prey base is being improved by reducing the dependence of people living in the forest fringe areas through relocation and rehabilitation of the Fulzari village. It may be said that after the removal of Totlahdoh village in 2003 the habitat has improved considerably and there has now been a visible increase in the prey base for large carnivores (Jha & Joshi)⁵.
- **Habitat Management-** Habitat management practices like soil and moisture conservation followed by strict fire protection plan has helped in the regeneration of many faunal species as Teak, Garai, etc. Water availability is enhanced, artificial water holes are created and existing natural water holes are improved. Meadows are created to facilitate movement of herbivores and sighting of wild animals. Wallow sites and salt licks have been identified and are replenished when needed. Periodic clearance of vegetation under power transmission lines also helps to prevent any mishap. Plantation of fruit species has been undertaken for birds and wild animals. Also removal of *Lantana* and other weeds has lead to improvement of grasslands (Jha & Joshi)⁵.
- **Core Wildlife Habitat protection-** Pench Tiger Reserve was notified as a core Tiger habitat on 31st December, 2007. The total core Zone area includes 90 compartments of reserve forests and one compartment of protected forests extending over an area of 257.26 sq. km. The area surrounding the core tiger habitat is under process of notification as Buffer Zone and will act as home for spill-over population of tigers and leopards and also provide protection to the core area.

- **Protection programmes-** Pench Tiger Reserve is said to have a very high tiger density of 7.3 tigers per 100sq.km leading to frequent straying of the population outside the reserve (Jha & Joshi)⁵. The Reserve has a robust protection regime which provides a good support to the breeding tiger population. The anti-poaching unit of the reserve keeps an all round watch on the reserve and the surrounding areas and also fringe villages. Foot patrolling is done by the forest staff along with people from local villages familiar with the terrain. Involvement of local people provided employment and also builds goodwill.
- **Research Activities-** Research and monitoring activities on various aspects of wildlife management and wildlife health are undertaken with the help of universities and research institutions. Ongoing research projects not only include the tigers, but other aspects as the landscape of the forest, floral diversity, critically endangered owlets, jackals and dragonflies.
- **Monitoring programmes-** Regular monitoring in the Reserve helps in identifying the dynamics and trends of tiger population. Monitoring is done by scat encounter rate survey. Observation of pug marks is carried out to monitor movement and other behavioural aspects of tigers and leopards. Camera traps are also being used which provide information about tigers as well as other wild animals. This helps in identifying individual tigers and also in monitoring their range and behaviour patterns (informed through guide).
- **Conservation Education-** All the villages in the buffer zone have been marked for eco-development works. Eco-development committees have been made in 3 of the 14 villages. With the objective of mutually beneficial co-existence efforts are underway to reduce biotic pressure from fringe villages and provide alternative livelihood options to villagers living on the fringes through the Joint Forest Management strategy.
- **Eco-tourism-** Eco-tourism is being developed in the Reserve with the objective to minimise impact of tourism on forests and wildlife, awareness generation among visitors, economic benefit to local communities, keeping visitor numbers within carrying capacity and providing training to guides from local villages. Nature Education, camping site at Sillari, Ambakhori and Kolutmara, Interpretation Centres at Ambakhori and Kolutmara, Orientation centres and Amphitheatre at Sillari Nature Awareness Complex are developed with the objective to make people aware of wildlife and to save them (informed by Mr. Atul Tikhe, Nature Interpreter at Ambakhori Interpretation Centre in Pench Tiger Reserve during our visit).

- **Corridor conservation-** The survival of large animals as tigers and elephants in small and fragmented landscapes is difficult and uncertain. Two or more sufficiently large patches of good forests connected with vegetated landscapes enables crossing over of tigers among those forests and constitute an ideal scenario for dispersal of fresh genes and mating with unrelated females gives rise to a viable population. Presently fragmented habitats surrounded by agro-pastorally dominated areas, open farmlands and human habitations are causing serious threats of being eliminated by poaching, electrocution, poisoning and others. The almost continuous good forested tract about 120-130 Km long between Pench Tiger Reserve in Maharashtra and Madhya Pradesh and Kanha Tiger Reserve in Madhya Pradesh provides space for dispersal of tigers and should be protected. Identifying potential corridors and ensuring strong protection to existing corridors can help a lot to save them (Jha & Joshi)⁵.

Conclusion

The importance of conservation of biodiversity is itself related to the future generation and only serious conservation efforts can save the existing flora and fauna from extinction. Pench Tiger Reserve landscape is a part of the Satpura ranges faces serious threat from habitat destruction, illegal grazing and fishing and poachers. Awareness and involvement of local people along with proper conservation strategy can help a lot to conserve the habitat and inhabitants of the forest.

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