

Conservation of Tigers through the Protection and Management of Forest Corridors

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Abstract:

Increasing urbanization and human activities are leading to fragmented forests. Fragmentation and habitat loss becomes threats of biodiversity. Many species including large carnivores like tigers are confined to these small and isolated areas, which are not sufficient to provide them sufficient food, water and mates. As already in small number, species like tigers can face local extinction due to these conditions, in spite of being the protected area. In the times of such fragmented and isolated forests, the forest corridors play a vital role. Forest corridors are the narrow patches for forest land which allow the movement of wild animals from one forest to the other. Corridors provide a land or water pathways which help in linking different protected areas to one another which help plants and animals to disperse and migrate and adapt to the pressures of local conditions due to climate change and increased human activities. Tigers get new mates in the new regions and that helps in maintaining genetic diversity which is very crucial for its conservation in long run. The territories of tigers are also expanded which provides them a large prey base. Thus the protection, management and conservation of these forest corridors are very essential for the long term conservation of tigers.

Key Words: tiger, corridors, diversity, fragmentation, conservation.

Introduction:

The total forest cover of India is near about 21.5% of the total geographical area, out of which the Protect Areas (PAs) network covers about 5% presently comprising more than hundred national parks, more than five hundred wildlife sanctuaries and few community reserves. Many of the Protected Areas are small and isolated. A small and significant proportion of wildlife exists outside the protected areas too. The concept of protected area management have gradually expanded to landscape conservation, where areas adjoining and outside the PAs have a significant role to play in wildlife conservation. The increasing human population leads to intensive human activities like urbanization, expansion of agricultural fields, mining, etc resulting into more fragmentation of forest lands. The chances of long term survival of major species of wildlife are very less due to several factors. Particularly the large carnivores like tigers are very much prone to local extinction. These isolated forests have tremendous threats from human activities, they have less and limited prey base and also subjected to local climate change. The tigers have restricted territory and can't move in new areas for food and to find new mates, thus may face the local extinction.

Forest or wildlife corridors are generally the thin and narrow patches of forests which extend from the main landscape and provide connectivity to the other major forest or protected area. As these corridors connects two major landscapes, they provide better chances for tigers to move and explore a new territory which ensures a large prey base and also new mates to enhance its genetic diversity. Corridors are thus very important to maintain a gene flow and the meta-populations which are spatially separated, that ensure a long term conservation of these species. But these corridors are facing tremendous threats from the human activities. Human interventions like constructions of highways, railways, canals, dams, transmission lines, industries and many other are deleterious to wild animals.

Conservation through Corridors:

Corridors are generally understood to be 'linear landscapes, meant to establish or facilitate connectivity across habitats and increase survivorship by increasing the diversity of specific gene pools and getting access to enough food'. So the obvious function of a corridor is to facilitate movement of animals which is crucial to long term viability of animal populations in term of feeding or foraging, seasonal migrations or permanent movement of animals when their habitat is rendered unfit and also to get new mates for better genetic variability. Small populations left in the isolated and fragmented reserves have proven to be more vulnerable to extinction due to genetic, environmental and anthropogenic factors. In such conditions, forest corridors play a vital role in the conservation of wildlife populations.

Tigers separated from their other members by miles of roads, agricultural lands, other infrastructural developments, are forced to live in isolated forests. Cut off from their neighbors, they no longer mix with others. Such isolated populations are small in number and may face genetic bottleneck. This genetic bottleneck is nothing but the reduced genetic variability. In long run, this may cause a local extinction of tigers from that area. Maintaining healthy genetic diversity is a key for long term conservation of tigers. Corridors provide that linkage through which tigers can continue to mate and exchange genes with those from different reserves. Some studies reveal that tigers have migrated even more than 200 miles with the help of corridors. The level of gene flow in tigers was significantly higher in the past. But the degraded corridors in recent times have declined the gene flow by up to 70 percent compared to historic times. The better maintained the corridor, higher the rate of gene flow between the populations.

Important Forest Corridors in India:

Terai Arc Landscape (TAL): This is composed of Indian and Nepalese trans-border protected ecosystems of Terai and nearby foothills of Himalayas. This area encompasses 14 protected areas from India and Nepal. It

is home to variety of wildlife including the Royal Bengal tiger. These forest areas are highly fragmented in recent times and none is large enough to sustain population of tigers for long time. Nihal- Bhakra is one of the prominent corridors which provide connectivity to the Terai Central forest division with Ramnagar forest division which is adjacent to Corbett National Park. Signs of tigers and some other animals were recorded from this corridor in some studies carried out by Wildlife Institute of India, Dehradun.

Rajaji- Corbett Corridor: This corridor is composed of two stretches (southern and northern stretch) of forests which connect two tiger and elephant protected reserves in the northern India. This belt is highly disturbed by the presence of Gujjar villages in and around the vicinity and also by the sand and stone mining activities. Both these stretches of forest corridors are reportedly used by tigers and elephants for movement.

Kanha- Pench Corridor: The Kanha- Pench corridor falls in the Satpuda- Maikal hill ranges and forms one of the most crucial tiger conservation landscape. This is one of the most important corridors in India spread over Maharashtra and Madhya Pradesh. It covers an area about 1600 sq.km and provide a refuge for number of animals like, sloth bear, leopards, wild dogs, jackals, sambhars, to name a few. Out of more than 600 tigers in Central India, about 120 tigers are found in Kanha- Pench landscape. Genetic studies in recent times have found a continuing gene flow between the tiger reserves of this landscape and also the presence of tigers in Kanha- Pench corridor. That clearly shows the functional aspect of this corridor. This corridor connecting Kanha and Pench National Parks passes through Mandla, Sivni and Balaghat districts of Madhya Pradesh and faces threat of degradation due to anthropogenic activities and lack of governance mechanisms to conserve and protect this area. Much of the Wildlife Corridor near Kanha has got fragmented due to human settlements and related activities.

Tadoba- Nagzira Corridor: Tadoba- Nagzira Corridor is another important forest corridor in Central India. It is near about 140 km. stretch of forest available between Tadoba -Andhari Tiger Reserve (TATR) in Chandrapur district and Navegaon- Nagzira Tiger Reserve (NNTR) in Bhandara and Gondia districts of Maharashtra. TATR has high density of tigers and the surplus population disperses outside the reserve. According to reports Bramhapuri and forest division and Ghodazari belt near Nagbhir has quite a good number of tigers, which is important part of this corridor. Due to its geographic location, it is very important and functional corridor which not only facilitate the tiger movement but also support resident tiger population.

Umred-Karhandla Landscape: Umred-Karhandla Wildlife Sanctuary is situated near Nagpur and has quite a good number of tigers. Geographical location of this landscape makes it a connecting corridor for two important tiger reserves in Maharashtra namely Tadoba -Andhari Tiger Reserve (TATR) and Navegaon-Nagzira Tiger Reserve (NNTR). Umred-Karhandla Wildlife Sanctuary itself is a home for variety of animals including tigers. The functional aspect of Umred- Karhandla and Nagzira corridor can be demonstrated by the fact that, a legendary tiger ‘Jai’ reached Umred- Karhandla WLS from its birth place Nagzira. Umred-Karhandla WLS has another corridor reaching Tadoba -Andhari Tiger Reserve through Nagbhir and Ghodazari forest belt. Ghodazari have reported to have a good number of tigers and other wildlife because of which it is recently declared as Wildlife Sanctuary in current the year 2018. Hence, Umred-Karhandla Landscape proves to be a central spot for the movement and dispersal of tigers.

Conclusion:

Forest corridors are the integral components of ecological landscapes. As discussed in the paper they provide the most essential pathways and connectivity to different reserves which are required for long term conservation of species. But in the modern times these stretches of forests are subjected to various anthropogenic activities due to which the functional aspects of these corridors are threatened and rapidly declining. The nexus between ‘Conservation and Development’ needs an urgent attention for an effective wildlife conservation and sustainable development. The conservation of this ‘umbrella specie’ and one of the most ferocious and majestic animal ‘tiger’ depends much on the corridors. In addition to proper management of protected areas, better protection and conservation of forest corridors is inevitable.

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