



TIGER HABITAT CONSOLIDATION IN KUDREMUKE

A FINAL REPORT TO

21ST CENTURY TIGER

FROM THE

WILDLIFE CONSERVATION SOCIETY (WCS)

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FINAL REPORT

TIGER HABITAT CONSOLIDATION PROJECT IN KUDREMUKH

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21ST CENTURY TIGER

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PROJECT TITLE: Tiger habitat consolidation project in Kudremukh

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EXECUTIVE SUMMARY

Habitat fragmentation has been identified as one of the major threats to biodiversity in general and to tigers in particular (Seidensticker et al. 1999, Wikramanayake et al 1999, Dinerstein et al 2006). This is particularly true in southern Asia where high-density human populations impinge on the few remaining tiger populations in critical habitats (Karanth 2003). Impacts from even tiny human enclaves such as illegal hunting of ungulate prey, killing of tigers, conflict situations and degradation of surrounding habitats from a variety of biomass removal practices pose threats to tigers. Furthermore, new social pressures generated by these enclaves for delivery of social services such as roads, communication are driving an ever-increasing spiral of human impacts (Madhusudan and Karanth 2000, Karanth and Madhusudan 2002, Karanth 2005).

The Western Ghats of India, in which Kudremukh Reserve is a part, is assessed to be one of the 25 hotspots identified for bio-diversity conservation in the world.

Kudremukh is also the largest protected wildlife reserve of a wet evergreen shola type of forest in the fragile Western Ghats. Privately held land enclaves located in the deep interiors of the Kudremukh Reserve are causing immense negative impacts on wildlife and biodiversity through agricultural expansion, forest fires, poaching, illegal removal of timber, commercial non-timber forest product (NTFP) extraction, increased human wildlife conflict, disturbance and restriction of animal movements due to fragmentation of the wildlife habitat.

However, due to shortage of funds and the need to employ long-term, litigation-prone land acquisition procedures by the government, progress in acquiring such land enclaves and merging them with the nearby protected-reserve has been negligible.

In order to address this critical conservation issue Wildlife Conservation Society – India Program with assistance from Centre for Wildlife Studies (CWS) and Kudremukh Wildlife Foundation, has come up with an innovative idea of facilitating acquisition of some privately held critical land enclaves by adequately compensating the land owners directly through private funds.

This project focused on acquiring private lands in the interior areas of the reserve that have already been identified for purpose of habitat consolidation. Land owners were compensated for their land and support was provided to find new alternative agriculture-based livelihoods. Six individual families of small land-holders (about 24 persons) were relocated and the land in possession of these families, including eight acres of legally owned agricultural land were acquired for restoration of natural habitat. In addition a substantial area of government owned forest land under the illegal occupation of these families for decades has now automatically reverted back to de facto public ownership in Kudremukh National Park, thus successfully completing the first phase of this project.

INTRODUCTION AND BACKGROUND

Kudremukh Reserve was initially notified in 1987, based on the recommendations from field surveys by Karanth (1985). In addition to the known presence of tigers, these surveys recorded the presence of the highly endangered Malabar Civet and Lion Tailed Macaque in the area. Kudremukh Reserve (area: 563 sq km) is spread over Chikmagalur, Udupi and Dakshina Kannada districts (75° 00'-75° 25' E, 13° 01'-13° 29' N) at an altitudinal range of 100-1840 m. This is the largest reserve of grassland and tropical wet evergreen shola type of forest in the Western Ghats. Kudremukh is contiguous with Someshwara Wildlife Sanctuary in the North and other Reserved Forests to the south. It receives an annual rainfall of approximately 7000 mm (second wettest place in India), with a recorded maximum rainfall of 10,000mm in 1994. The topography is mountainous with a central ridge running north to south. Three major rivers - Tunga, Bhadra and Netravathi - originate in the watersheds within this reserve.

Several wet evergreen forest types occur in Kudremukh Reserve. At elevations above 1400m, montane grasslands and short-stature shola forests of the *Schefflera-Gordonia-Meliosma* series occur. At lower elevations, tall dipterocarp dominant evergreen forests characterized by the *Palaquium-Poeciloneuron-Hopea* and the *Poeciloneuron-Dipterocarpus-Kingidendron-Humboldtia* series are predominant.

The large mammal fauna has several unique species that are rarely found in the other wildlife reserves: the Lion-tailed macaque, Malabar civet and Small flying squirrel. The threatened larger mammals include tiger, leopard, dhole, sloth bear, elephant, gaur, sambar and muntjac. The avifauna includes more than 180 species of birds, of which eight species are endemic to the Western Ghats. About 54 species of reptiles and 34 species of amphibians are known to occur in this reserve, including highly endangered species like the Flying lizard, Flying snake, King cobra, shield tail snakes, Travancore tortoise, Forest cane turtle and several endemic frogs. The aquatic insect species richness in this reserve is the highest recorded in the Western Ghats.

CONSERVATION NEED FOR VOLUNTARY RELOCATION

Kudremukh Reserve is one of the last few compact stretches of grassland and shola forest ecosystem in the Western Ghats; it is an important natural habitat for the survival of wild tigers and several other endangered species of wildlife endemic to the Western Ghats.

The forests of Kudremukh are getting fragmented due to pressures from several privately owned/occupied land enclaves within. All these land enclaves presently scattered across the Reserve, are not a part of the park having been left out of the reserve in the final notification of the Kudremukh Reserve issued in June 2001. The presence of such private land enclaves deep inside the forests, because of human population growth and commercial development, poses as potential threat to tigers and other wildlife through following types of negative impacts:

Illegal Hunting

Presence of enclave leads to serious human wildlife conflict, particularly crop raiding by ungulates and livestock killing by predators, leading to retaliatory killing of wildlife. Additionally such enclaves provide a safe base for illegal hunting far away from the enforcement agencies.

Illegal livestock grazing and collection of forest products

There is tremendous pressure on the wildlife habitats due to over grazing of domestic cattle and the commercial extraction of Non Timber Forest Produce (NTFP) for local, regional and global markets. The forest department staff is finding it increasingly difficult to enforce restriction on illegal cattle grazing and commercial extraction of NTFP originating from private land holdings scattered across the Reserve.

Habitat Fragmentation from Agricultural Expansion

There is continued habitat fragmentation through forest encroachment by landholders of these enclaves. This has been due to high population growth and the inability to

make a livelihood on successively smaller fragments of agricultural land inherited by each generation. The problem is aggravated with the unavailability of alternative livelihood or job opportunities and lack of social amenities due to the remote geographical location of these settlements. Cultivation in the interior areas of the forests poses as a serious threat to their fragile ecosystems due to the increasing use of pesticide and fertilizers in the agricultural fields and plantations.

Formation of New Roads and Power lines

There have been several attempts to form roads illegally to these interior areas; giving more access to human intrusion would contradict the very purpose of declaring this area as a wildlife reserve. Formation of roads inside Kudremukh Reserve inevitably calls for felling of trees and fragmenting wildlife habitats further. Increased and unrestricted vehicle movement on interior roads facilitates illegal hunting and forest product smuggling.

Ill-planned Tourism

The scenic beauty, the climate and the presence of private land enclosures within the Park, has attracted unregulated hiking activity and is now beginning to catch the attention of commercial tourism operators. The landholders of a few enclaves are already planning to run commercial tourism resorts in the midst of this extremely fragile wildlife habitat of the Reserve.

Mining

The open cast iron ore mining operation by the Kudremukh Iron Ore Company Limited (KIOCL) in a leased enclosure of 46 sq. km size for last 30 years has caused great damage to the eastern part of the reserve. However, litigation by Wildlife First in the Supreme Court of India has resulted in the closure of the mine at the end of 2005. The people living in the enclosures, particularly Bhagavathi, who depended on raising cattle to provide milk to the mining township, lost a livelihood opportunity, although ecological damage from mining has been stopped.

PROJECT OBJECTIVES

The overall goal of the project is to consolidate critical tiger habitats in the wet evergreen forests of Kudremukh Reserve, Karnataka State, India.

SPECIFIC OBJECTIVES

1. To reduce negative human impacts such as hunting, NTFP extraction etc. in the interior area of the Reserve.
2. To reduce the number of cattle and grazing pressures within the Reserve.
3. To prevent future forest encroachments through illegal agricultural expansions of the enclaves.
4. To eliminate human wildlife conflict in the Reserve.
5. To generate opportunities for villagers living deep inside the forests, who are presently deprived of social amenities such as hospitals, transportation and education as well as economic and livelihood opportunities, greater access to these opportunities.
6. To create a model private land acquisition project for consolidating crucial tiger habitat in other parts of the country.
7. To infuse confidence and inspire more families living in the reserve to accept the larger voluntary relocation package that is being prepared by the government.

PROJECT IMPLEMENTATION

Almost all the village enclaves have legal private landholdings as well as illegally occupied forest lands for the past few decades. Some times the same landholder may have both legal and encroached forest land. However, due to political problems associated with land right claims etc. the government has not been able to either compensate or acquire legal or illegal land holdings in the area efficiently. From an ecological perspective both legal and illegal enclaves will have to be relocated to consolidate habitats. Hence, for the project to be successful from an ecological perspective both legal landholders and the illegal occupants will need to be adequately

compensated and all the occupied land be restored to natural forest cover and protected from future encroachment.

The feasibility and scoping of this project has been done after several discussions with local communities living within the enclaves, the field level and senior level government officers. The underlying idea of this project is unique.

Identification of Interior Enclosures:

1. Interior enclosures located deep inside the forest have already been identified based on WCS-India expertise in tiger ecology and have been targeted for priority for habitat consolidation and integration with the reserve

Dialogue with landholders on their willingness to dispose off their property

There have already been several discussions with the pre-identified private landholders on the willingness to dispose of their property for a suitable monetary compensation. Several landholders expressed their willingness to dispose off their properties and move out for a reasonable compensation; this dialogue was pursued vigorously under the project. Some residents sought assistance of the project for locating suitable properties.

Compensations Provided

The land prices were negotiated with the landowners and market prices comparable to those prevailing in localities that had reasonable access to civic amenities and roads were offered so that the villagers could buy alternate land of equivalent quality and value but with better access to amenities. Furthermore, we provided help to villagers in finding alternate land, legal assessments and to acquire the alternative properties in their names. In addition, the project offered some cash support for the transition period and to support better education facilities for the children of those who relocated.

DETAILS OF LANDS ACQUIRED AND HABITATS CONSOLIDATED

Bhagawathi Enclosure (see Figure – 2)

Geographical Location:

North Latitude 13° 12' 10.00" and East Longitude 75° 11' 57.28"

Bhagawathi agricultural enclosure is located 150 meters off the highway that connects Karkala to Kudremukh Township. It is located within the central part of the Kudremukh National Park and is surrounded by habitats with some of the highest wildlife densities in the reserve.

The present land consolidation within this enclosure is a continuation of the pilot voluntary relocation efforts initiated with support from Wildlife Conservation Society and Vikram Nagaraj - Microsoft by the Kudremukh Wildlife Foundation earlier. That effort involved voluntary and incentive driven relocation of eight families (encroaching on forest land without any legal land rights) who owned about herds of about 400 cattle that used to cause immense damage to the surrounding grassland and forests of the national park.

Although this earlier effort had removed all human inhabitants from Bhagawathi enclosure, there still remained 20 acres of fallow agricultural land legally held by 3 individual absentee landlords who were living away from the reserve. These holdings posed as a potential threat of introducing agriculture, livestock husbandry and destructive commercial tourism into the heart of the reserve. Therefore, KWF has been negotiating with these landowners for the last six years. Finally, one of the three landholders agreed to sell out, and this acquisition was completed under the present project.

As a result of the project activities, out of the total extent 20 acres of existing legal land holding within the Bhagawathi enclosure an area of 5.23 acres of agricultural land (fallow paddy fields) was purchased for habitat consolidation.

Nassehalla Enclosure (see Figure – 3)

Geographical Location:

Lat/Long: 13° 08' 31.39" N 75°18' 00.38" E

Nassehalla is one of the two settlements located in the catchment area of Somavahini stream (a tributary to River Bhadra) surrounded by an intact block of 75 sq. km of grassland and evergreen shola forest. Nassehalla is located on the trail leading to the highest peak of Kudremukh, also in the core area of Kudremukh National Park. The enclosure is located 10 km away from the nearest larger village of Samse, which has all weather road access. Nassehalla can be approached only on foot.

Nassehalla enclosure consisted of 6 families owning 3.23 acres (1.31 hectares) of legal land holding, in addition to this they had encroached upon about 30 acres (12.21 hectares) of the adjoining forest land in the national park. These 6 families had cultivated paddy, arecanut plantations, coffee plantations, etc. in their land for several decades. They also owned 6 houses along with cattle sheds and agricultural barns. They had also diverted several natural streams in the surrounding forests to irrigate their crops

In the 1970's, only two families lived in this settlement. As their numbers multiplied over the years, many of the family members emigrated out of the forest in search of livelihood. However six nuclear families remained in the location carrying on agriculture and animal husbandry. The small extent of 3.23 acres of legal agricultural land holding was not sufficient to sustain them, compelling them to gradually expand their agriculture by illegally encroaching upon a further 30 acres of the adjoining forest land.

Each family at Nassehalla owned about 40 heads of cattle, a total of about 250 livestock that grazed illegally in the surrounding forests, causing a huge negative impact on the surrounding grasslands and wet evergreen forests. The villagers also burnt grasslands in the dry season to promote fresh growth of grass and improve pasturage for their cattle. About 250 cattle were reared primarily for providing dung as manure for their crops. Each family depended on wood for fuel, and exploited

about 20 tons of firewood each year. All the firewood requirements were extracted from the nearing evergreen *shola* forests, gradually depleting the forests around these enclosures. The villagers also commercially extracted several NTFP species, which fetched a good price in the markets severely affecting regeneration of the rain forests.

However, these families also faced several problems as consequence of their remote location within the reserve. Their crops were severely raided by wild pig, gaur and sambar, destroying about 25-30 % of the production annually. The villagers have incurred huge losses due to frequent depredation on cattle by tigers and leopards. As a retaliatory measure the villagers sometimes poisoned the half eaten carcasses causing deaths of carnivores.

Because of wildlife and forest protection laws, inhabitants were automatically denied basic amenities like roads, electricity, telephone, etc. When the villagers attempted to illegally form a motorable road to Nassehalla in the past, the Forest Department stopped this work as a violation of wildlife law.

Most of the village children lacked good education, as they have to travel long distances for schooling. As a consequence the younger generations in Nassehalla were denied better-paid employment opportunities. Due to all these factors, the inhabitants of Nassehalla, particularly the younger generation have desired to shift out of their remote location in search of a better life.

Inspired by the successful voluntary relocation of the eight families out of Bhagawathi in pilot project of 2003, villagers of Nassehalla had approached Mr. Niren Jain in 2003, expressing their desire to relocate. Several meetings were held in association with the then reserve officials on the issue. After intensive negotiations, villagers and Niren Jain settled on a reasonable value for the lands occupied in Nassehalla and the compensation for other assets they owned. A detailed valuation of all immovable properties was made for each household and the agricultural crops cultivated by them. Three of the six families already owned some land outside the National Park. The project leader assisted the other three families to locate alternative land for resettlement at a location about 45 km away.

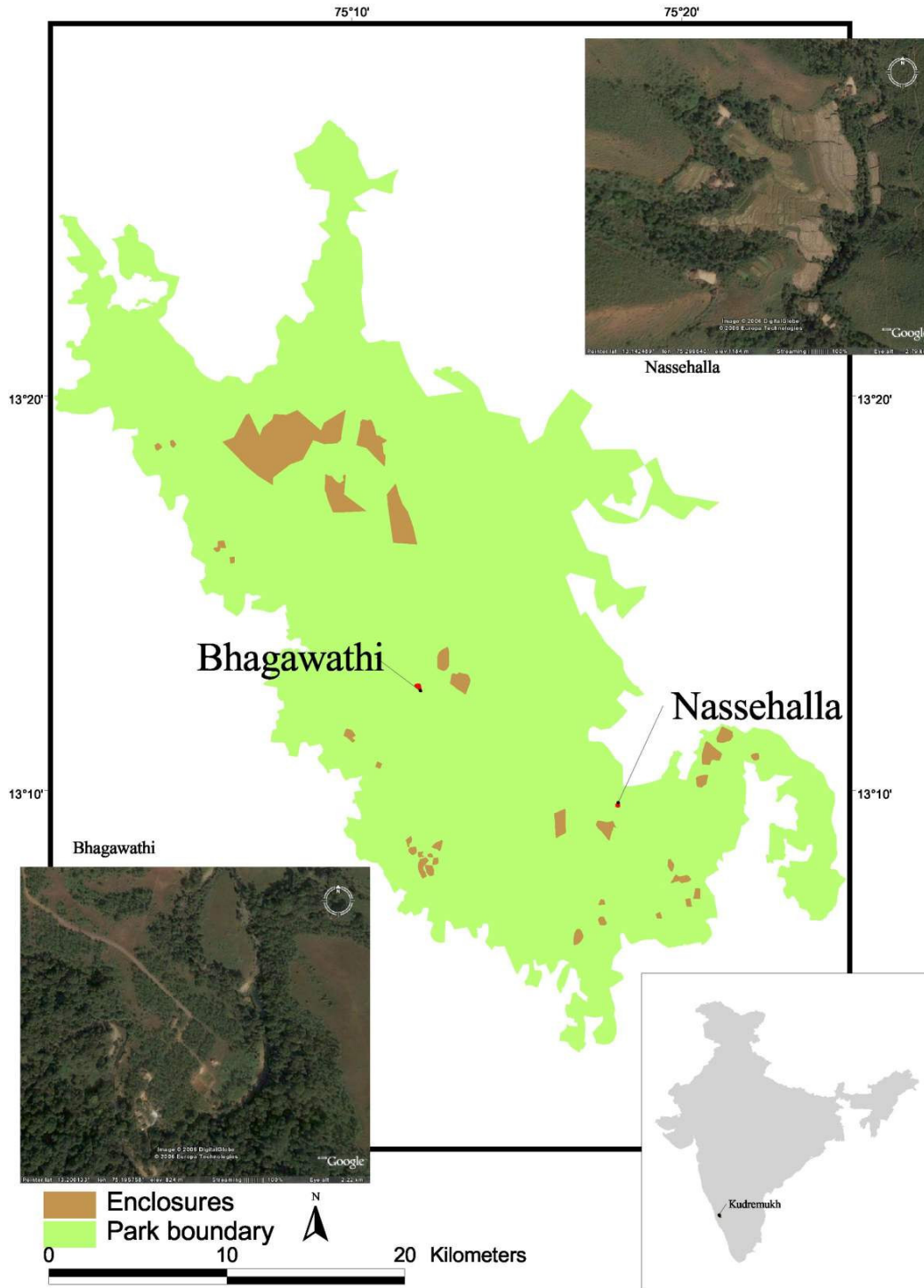


Figure – 1: Map of Kudremukh National Park showing location of Bhagawathi and Nassehalla land enclosures acquired during the project.



Figure – 2: 5.23 acres of fallow agricultural land at Bhagawathi (centre of the image), located east of the Bhadra River adjoining the Nature Camp of the Forest Department.

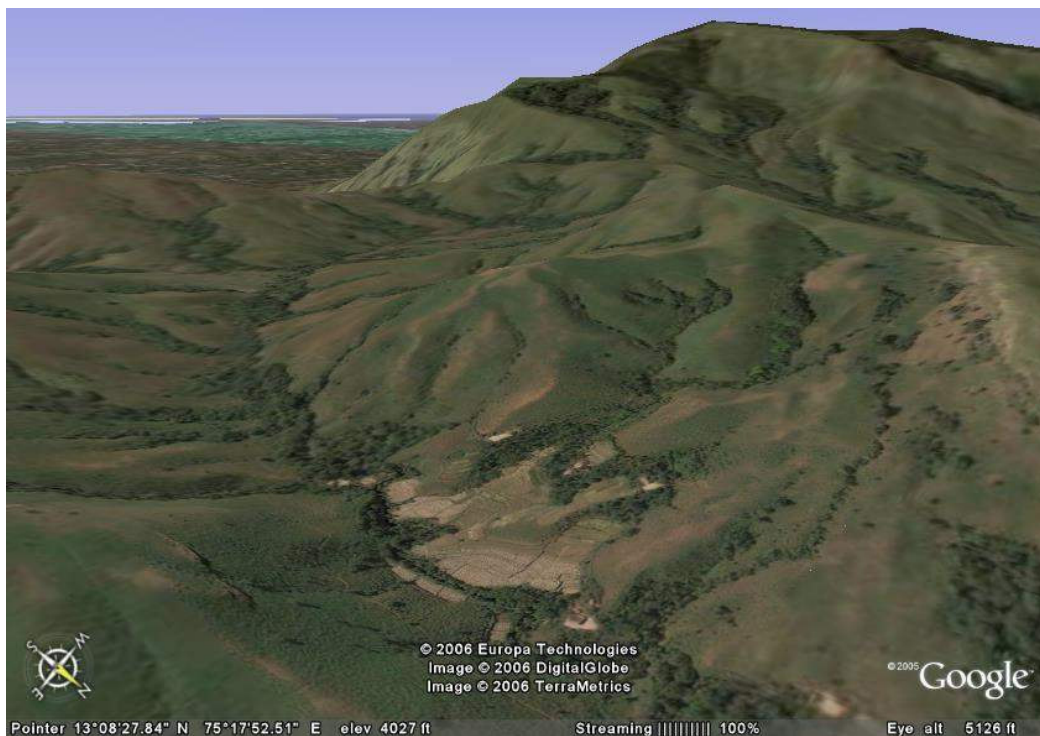


Figure – 3: A google-image of Nassehalla enclosure (3D view) with Kudremukh Peak on the Western Ghats ridgeline seen at the background