

## Chapter 4

### Human Wildlife Conflicts and Wildlife Corridors

#### 4.1 Human Wildlife Conflicts

Expansion of agricultural fields leads to fragmentation of forests all around the globe. Increasing human population lead to development activities like hydel projects, irrigation canals, coffee estates, road and railway network and urbanisation. Loss of tropical forests coupled with fragmentation lead to decrease in ecosystem services of great value to humanity such as carbon storage in biomass and soils, watershed regulation and rainfall, modulation of climate and river flows, spread of infectious disease and also reduction of the feeding ground of many species. The animal populations look for alternative sources towards human settlement areas and finally end up in Human Wildlife Conflicts (HWC) at fringe areas of Protected Areas.

The fragmentation of forests has created a discontinuity of forests and has become a major hurdle for the movement of wildlife including the elephant and tigers from one forest to another. During such movements, the wild animals crisscross human habitation and come in contact with people who have settled / encroached on their prehistoric migration paths, thus ending up in HWC.

Some of the major species involved in HWCs are the mega herbivores like elephant and carnivores like tigers and leopards. Apart from these major flagship species, even wild boar, gaur and sambar can inflict damages to standing crops, human life and their property. However, elephants stand out as a key conflict species as they cause high economic losses and are also responsible for a high number of human fatalities. It is estimated that nearly 400 people are killed annually in elephant conflict related incidences in India and they cause damages approximately up to 5,00,000 families through crop depredation. Similarly, 100 elephants are killed due to retaliation by farmers in a bid to remove 'problem' animals. During the period 2008-09 to 2010-11, 91 people were killed by elephants while 101 elephants were killed in retaliation in the State of Karnataka<sup>18</sup>.

##### 4.1.1 Overall conflict cases

There are about 956 fringe villages around the selected PAs with vast agricultural fields and encroachment of up to 9,512 acres. To mitigate HWCs the Department has taken up short term measures like excavation of Elephant Proof Trenches (EPT), solar fencing, special structures, deployment of Elephant Depredation Camps etc. A total of 26,685 cases of compensation events<sup>19</sup> have been registered and an amount of ₹ 11.43 crore has been incurred on the same in the 14 test checked PAs between the years 2011-12 to 2015-16 as shown in the **Table 4.1:**

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<sup>18</sup> An Elephantine challenge- Human Elephant Conflict distribution in the largest Asian Elephant population, Southern India- Sanjay Gubbi *et al*- Biodiversity Conservation (2014) 23:633–647

<sup>19</sup> Instances of crop, cattle and human depredations, human injuries and loss of property

**Table 4.1: Protected Area-wise details of compensation events and amount paid during 2011-16**

(Amount in ₹)

Protected Area/ Division	No of crop compensation cases	Total amount spent on crop compensation	No of human death	Compensation amount paid	Human injury	Compensation amount paid	No of property damaged	Compensation amount paid	No of Cattle killed	Compensation amount paid
Bandipur TR	7171	15626821	9	4500000	82	1273482	35	71840	544	1814682
Bharda TR	882	5438532	1	500000	1	20000	0	0	22	90500
BRT Tiger Reserve	2635	9440211	15	7200000	34	324401	0	0	49	242000
Cauvery WLS	995	3006250	8	4000000	8	111983	0	0	75	472000
Dandeli Anshi TR	736	2299857	3	150000	12	201085	0	0	399	2133095
Kudremukh Wildlife Division (3 PAs)	322	1098546	1	500000	0	0	0	0	54	196983
M.M. Hills	559	1812221	7	3200000	14	167221	20	83455	10	38000
Madikeri Wildlife Division (3 PAs)	4495	13630548	1	500000	6	74500	40	266450	47	210800
Nagarahole TR	6477	25506707	8	3850000	27	351241	23	108900	532	2138800
Sharavathi WLS	258	1262840	0	0	1	4049	0	0	67	394520
Total	24530	79122533	53	24400000	185	2527962	118	530645	1799	7731380

(Source: Details furnished by the Department)

Out of the total amount of ₹ 11.43 crore, ₹ 7.91 crore was paid towards crop loss, ₹ 2.44 crore towards human death and ₹ 25.28 lakh towards human injury (caused by elephant, tiger / leopard). The number of crop raids (**Table 4.2**) and compensation incidences showed an increasing trend across the years. A total of 50 persons have been reported to be trounced by elephants and three persons mauled to death by tigers during 2011-12 to 2015-16 in the selected Protected Areas and ₹ 2.44 crore was been paid as ex-gratia.

Thus, it can be seen that the mitigation measures deployed being of short term nature, were inadequate to control or minimise the incidences of HWCs. The solution therefore lies in exploring and executing long-term measures like expansion of wildlife areas, securing animal corridors, rehabilitation of human habitations which were, however not prioritised.

#### 4.1.2 Crop compensation due to Elephants

Elephants are the major cause of crop depredation. The surge in elephant population needs larger feeding ground. However, most of our PAs are infested with weeds like *lantana* and other weeds (dealt in **Chapter 8.2**) which have taken over large chunks of feeding grounds of elephants which are now forced to look for alternative sources of food. The elephants wandering out in search of new feeding grounds are attracted towards the standing cash crops like banana, sugarcane, etc., grown in the fringe villages and end up in conflict with humans safe-guarding their crops. Such reports send alarming signals for the future and highlight the necessity for preparedness of the

Department for ensuring better co-existence of Humans and Wildlife. The Department had taken up various mitigation measures to reduce HWC by installing structures like Solar fencing, EPTs, Cattle Proof Trenches (CPT), Railway barricades, Anti depredation squads, special structures, *etc.* However, the instances of crop depredation have not come down, but have rather increased as can be seen from the **Table 4.2**.

**Table 4.2: Protected Area-wise and Year-wise details of incidences of crop damages by elephants during the period 2011-12 to 2015-16**

(Amount in ₹)

Protected Areas/Division	2011-12		2012-13		2013-14		2014-15		2015-16		Total	
	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount
Bandipur TR	965	1968827	878	1882375	1371	3262725	1030	2390506	2927	6122388	7171	15626821
Bhadra TR	150	689690	284	2066179	122	931016	240	1219501	86	532146	882	5438532
BRT Tiger Reserve	514	1553158	1411	5209712	440	1592904	210	774824	60	309613	2635	9440211
Cauvery WLS	64	182263	0	0	270	694374	359	1006227	302	1123386	995	3006250
Dandeli Anshi TR	128	324855	110	303345	103	304467	218	894697	177	472493	736	2299857
Kudremukh WLD (3 PAs)	39	92752	64	194112	98	341270	48	196747	73	273665	322	1098546
M.M.WLS	286	885990	175	469654	59	251093	19	102692	20	102792	559	1812221
Madikeri WLD (3 PAs)	645	2027488	1239	3232750	693	2437200	1427	4422820	491	1510290	4495	13630548
Nagarahole TR	1053	4467027	1871	8516171	1302	4801222	1401	4658319	850	3063968	6477	25506707
Sharavathy	7	37500	36	133150	14	78158	63	560830	138	453202	258	1262840
Total	3851	12229550	6068	22007448	4472	14694429	5015	16227163	5124	13963943	24530	79122533

(Source: Details furnished by the Departmental)

As could be seen, except in case of Biligiri Ranganathaswamy Temple (BRT) Tiger Reserve and Malai Mahadeshwara (MM) Wildlife Sanctuary which show a decreasing trend, the rest of the PAs showed varying crop raid incidences in different years. Reasons for the year-on-year fluctuations in the incidences, though generally showing an increasing trend, need to be further investigated and analysed.

The increase in crop depredation can be attributed to the failure on the Department front, in maintaining the EPTs and solar fences properly. It was observed that in many places the solar fences were not functioning and were brought down while in many places EPTs were filled up. It was also seen that many of the fringe villages have grown cash crops like sugarcane, banana, paddy, *etc.*, which attract animals like elephants, gaurs and wild boars. However, the Department failed to convince such farmers to go in for crop pattern change and harvest crops which the wild animals are not attracted to like cotton, turmeric *etc.* Further, the compensation paid for crop depredation were delayed up to six months, such delay in compensation acts as a threat to wildlife by means of retaliatory killings.

Thus, it becomes necessary to continuously evolve strategies for mitigating conflicts and a major mitigation measure initiated by the Department has been brought out in succeeding paragraphs.

### 4.1.3 New mitigation measure

One of the latest mitigation methods being adopted is the barricading of the PAs using old railway rails. This is an ambitious project with huge expenditure of ₹ 37.38 crore incurred during 2013-16 and is being tried out in Bandipur and Nagarahole Tiger Reserves. The used railway rails are bought at scrap cost from Railways, transported to work site concerned and a barricade is constructed using these rails. This is based on a success story of a similar structure at Addo National Park of South Africa. In Bandipur and Nagarahole TRs, railway barricade work has been completed to an extent of 3.5 km and 9 km respectively up to March 2016.

Elephants, being one of the most intelligent animals, adapt to new situations easily and had already learnt to cross EPTs and negotiate solar fences. Now, even the newly erected railway barricades are being negotiated by them as shown at **Fig 4.1:**



Fig 4.1: a, b & c An elephant successfully crossing over the Railway barricade at Nagarahole Tiger Reserve. Fig 4 d: An elephant gets stuck in the process of crossing the barricade. Image source: Karnataka Forest Department

To address this problem, the height of the barricade was subsequently raised to 12 feet. However, this being a new mitigation measure of its kind and still in its nascent stage (12.5 km as of March 2016), it would be premature to assess its efficiency. An elephant herd needs more than 600 sq km of home range<sup>20</sup> while most of the PAs in the State are about 500 sq km range. In this scenario, if PAs are barricaded by rails all around, they hamper the free movement of the elephants which need large feeding grounds and this could have a negative impact on these animals. Therefore, it may be prudent to try out the new mitigation method in one PA on experimental basis and extend it to other PAs only after assessing its success and implications.

#### 4.1.4 Cattle depredation

Cattle are valuable as they are one of the important sources of livelihood for the poor farmers and their loss is of great significance to them. But with increasing population, shrinking and fragmented habitat, wildlife movements have been restricted and resources are limited for carnivores like tigers and leopards. Hence, the cattle of fringe villages and those which are illegally taken to graze in the PAs become an easy prey for them. Therefore, cattle depredation is also an important indicator of Human Wildlife Conflicts. The details of cattle depredation recorded in different PAs during 2011-12 to 2015-16 have been brought out in **Table 4.3:**

**Table 4.3: Details of cattle kills recorded in PAs during the period 2011-12 to 2015-16**

(Amount in ₹)

Cattle killed in PAs	2011-12		2012-13		2013-14		2014-15		2015-16		Total	
	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount	No of cases	Amount
Bandipur TR	115	259600	49	139411	105	288000	102	292000	173	835671	544	1814682
Bhadra TR	2	5000	5	13500	3	8000	6	18000	6	46000	22	90500
BRT Tiger Reserve	8	23000	9	30500	5	15000	11	68000	16	105500	49	242000
Cauvery WLS	0	0	0	0	1	3000	6	31000	68	438000	75	472000
Dandeli Anshi TR	75	236000	102	305000	55	177000	75	522500	92	892595	399	2133095
Kudremukh Wildlife Division	12	41433	16	44050	5	15000	15	46000	6	50500	54	196983
M.M. Wildlife Sanctuary	8	29000	2	9000	0	0	0	0	0	0	10	38000
Madikeri Wildlife Division	2	6000	24	70800	4	12000	5	22000	12	100000	47	210800
Nagarahole TR	48	140000	138	410000	158	472000	89	790300	99	749500	532	2561800
Sharavathy WLS	3	6850	20	66000	8	30500	13	90670	23	200500	67	394520
Total	273	746883	365	1088261	344	1020500	322	1880470	495	3418266	1799	8154380

(Source: Details furnished by the Department)

As could be seen from **Table 4.3** above, 1,799 cases of cattle depredation have been reported and compensation of ₹ 81.54 lakh paid during 2011-12 to 2015-16. Also, except for Kudremukh Wildlife Division, Bhadra Tiger Reserve and MM Wildlife Sanctuary, there is an increasing trend in cattle depredation during the period 2011-12 to 2015-16.

<sup>20</sup>The IUCN Red List of Threatened Species: *Elephas maximus* – published in 2008.



#### 4.1.5 Impact of increase in large carnivores

Apart from the above, recent incidences in Bandipur TR and Nagarahole TR about increased Human-Tiger / Leopard Conflict have thrown up alarming situations in these areas. During 2015-16, there were two incidents of human death caused by tigers, in which one tiger was shot down (as it had turned into a man-eater) while the other was captured and kept in Mysuru Zoo. Further, there are many incidents reported by the Department of capturing leopards from various human habitations around the PAs and relocating them back to the wild. Under such instances when these cattle are being preyed upon by wild animals there is a sense of intolerance among the villagers and this is further aggravated by delay in payment of ex-gratia / compensation which leads to retaliatory killings of wildlife by poisoning, gunning down and electrocuting in and around PAs (Fig 4.2 a, b and c).

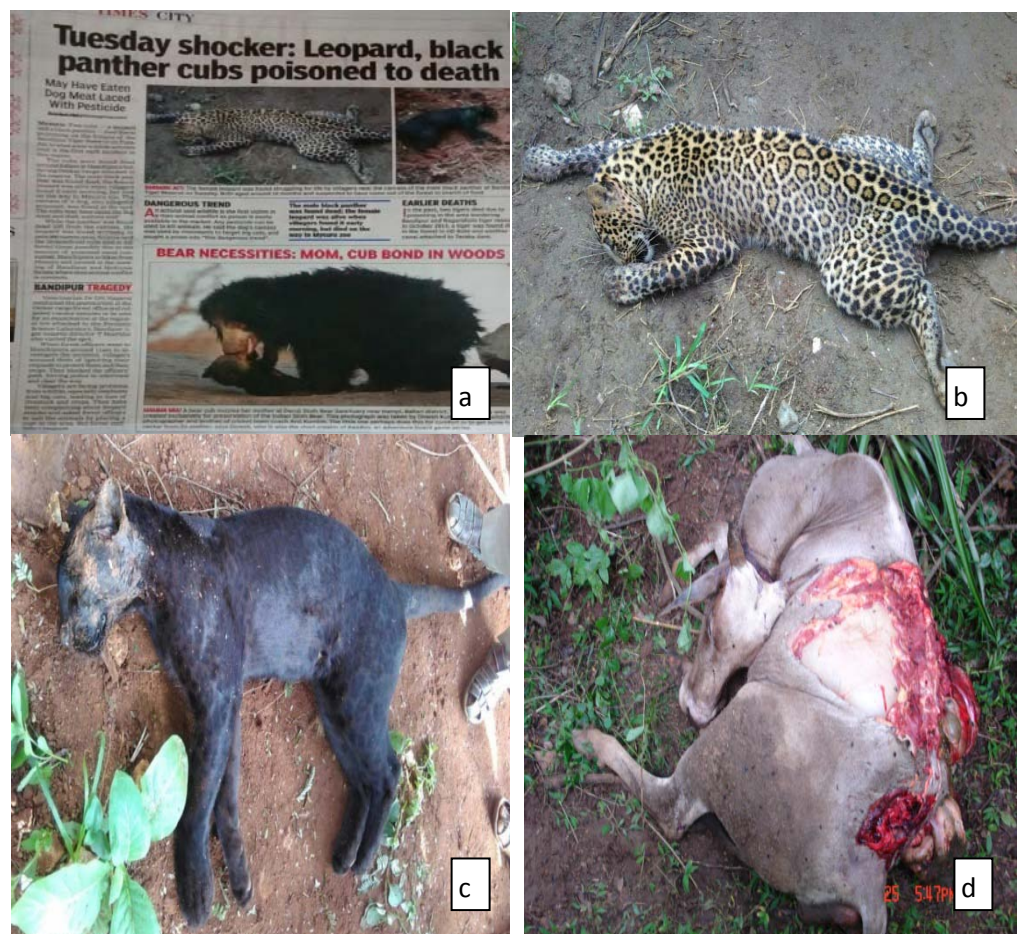


Fig 4.2: a. News paper clipping of retaliatory killings. b & c: Retaliatory killing of young Leopards on the fringe Bandipur Tiger Reserve. d. Cattle depredation by leopard in Nagarahole Tiger Reserve. Image source: Karnataka Forest Department

As per the Status of Tiger in India 2014<sup>21</sup> report, Nagarahole TR, Bandipur TR and BRT TR have an estimation of 10.28, 11.09, 11.29 tigers per 100 sq km against the average of 8.5 to 9.5 tigers per 100 sq km of forest. This overflow of population has pushed many of the older tigers to the fringe areas

<sup>21</sup> Status of tiger in India 2014, K. Ullas Karanth, N. Samba Kumar, Ravishankar Parameshwaran, Arjun Srivathsa, Sushma Sharma, Wildlife Conservation Society – India and Centre for Wildlife Studies

while, younger tigers often wander out looking for newer territory to establish themselves and end up coming in contact with humans. Both scenarios result in conflict. Hence, possibly the only way to address the issue could be to identify the problematic areas with frequent / high incidences of human death / retaliatory killings and take up rehabilitation / relocation of humans from these areas.

Given the seriousness of Human Wildlife Conflict and its extreme gravity, there should be a continuing programme for containing and defusing such conflict. Overall, the Department has spent an amount of ₹ 74.68 crore for mitigation measures and an amount of ₹ 11.38 crore towards compensation during 2011-12 to 2015-16 but with little success. In the Exit Conference, Government stated that the local people would be involved in the maintenance of EPTs and solar fences, though it is not clear to audit how that would improve the effectiveness of these measures.

In such a situation, a long term solution is the only way, with both tigers and elephants needing large home ranges for their survival. Proper corridors which connect forests and fragmented areas needs to be established for easy passage of wildlife which could reduce Human Wildlife Conflict and also play a vital role in improving the gene pool<sup>22</sup> of a given species in the form of blood exchange.

**Recommendation 1:** The Department needs to maintain an updated database of wildlife movement. Incentivising farmers to grow non-cash crops around the Protected Areas and providing of crop insurance may be taken up. Maintenance of Elephant Proof Trenches, solar fences, special structures and adequate use of Elephant Depredation Camps may be ensured to reduce Human Wildlife Conflicts.

#### **4.2 Wildlife Corridors and expansion of Protected Areas**

Under Wildlife (Protection) Act, 1972 areas of adequate ecological, faunal, floral, geo-morphological, natural or zoological significance have been declared as a National Park, Wildlife Sanctuary, Conservation Reserve or Community Reserve for protecting, propagation or developing wildlife or its environment. National Parks and Wildlife Sanctuaries are spread over different parts of the State. Amongst single large or several small PAs, several small models have won over single large PA from the conservation point of view and is the most pragmatic model when human numbers are very large. For several small models to be effective, it is extremely important to link such PAs by means of providing corridors for animal movement to facilitate gene flow. Stretches of habitat that represents ecotones<sup>23</sup> and ecological gradients<sup>24</sup> between the two habitats, must be effectively conserved<sup>25</sup>.

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<sup>22</sup>Indicates high genetic diversity, increased chances of biological fitness and survival

<sup>23</sup> A region of transition between two biological communities which are often rich in species than either of the two regions (Oxford dictionary)

<sup>24</sup> It is a gradual change in abiotic factors through space or time

<sup>25</sup> Report of the National Forest Commission, 2006

#### **4.2.1 Restoration of Wildlife Corridors**

A Wildlife Corridor is a narrow strip of land with native vegetation that connects two or more larger areas of similar habitats or forest fragments and is critical for the maintenance of ecological process including migration, colonisation and interbreeding of plants and animal communities thus enhancing the chances of survival.

Habitat loss and fragmentation are the two main contributors to continuing biodiversity decline across the landscape. Fragmentation of forest due to rapid human development and encroachment along the paths connecting the two forest patches have resulted in many plant and animal species becoming isolated and also affected the movement of large mammals like the elephants and tigers.

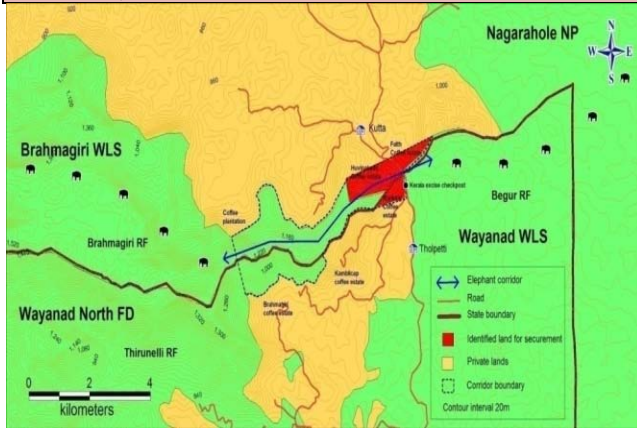
A total of 88 wildlife (elephant) corridors were identified by the Wildlife Trust of India which has been brought out in its report "The Right of Passage" (2005) to conserve the elephants. As far as Corridors of Southern India are concerned, 20 corridors were identified of which seven are in Karnataka. These were reiterated in "Gajah" (2010) a report brought out by the Ministry of Environment, Forest and Climate Change, Government of India (MoEF) Elephant Task Force Committee and "Conservation Plan for securing selected Elephant Corridors in South Western Ghats" (2011) brought out by the Wildlife Trust of India.

Among the seven corridors identified in Karnataka, five fall in the Western Ghat-Nilgiri Biosphere Region *viz.*, Kaniyanpura - Moyar (Bandipur TR), Chamarajanagar-Talamalai (Talavadi-Muddahalli, BRT TR), Chamarajanagar-Talamalai, Punjur (Punjur- Kolipalya, BRT TR), Edayarahalli- Doddasampige (MM WLS) and Brahmagiri- Tirunelli (Madkeri Wildlife Division) which are our prime concern and area of study. Among these, three are considered as high ecological priority and conservation feasibility corridors while two are identified as medium ecological priority and conservation feasibility corridors. The status, ecological priority and conservation feasibility of these corridors have been brought out in **Fig 4.3** below:



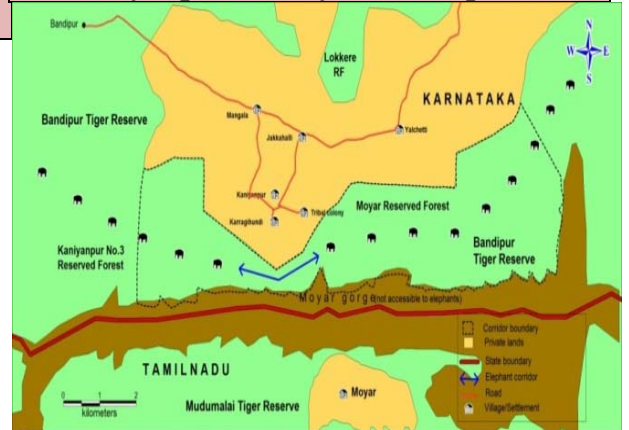
**Fig 4.3: Status and ecological priority of Corridors**

**1. Brahmagiri- Tirunelli, (Madikeri WL Division)**



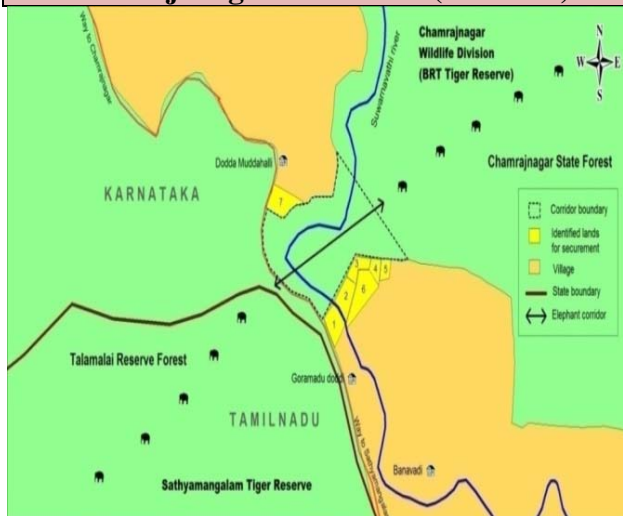
**Status:** The corridor runs along several tea estates and plantations.  
 Ecological Priority- Medium  
 Conservation Feasibility -Medium

**2. Kaniyanpura - Moyar (Bandipur TR)**



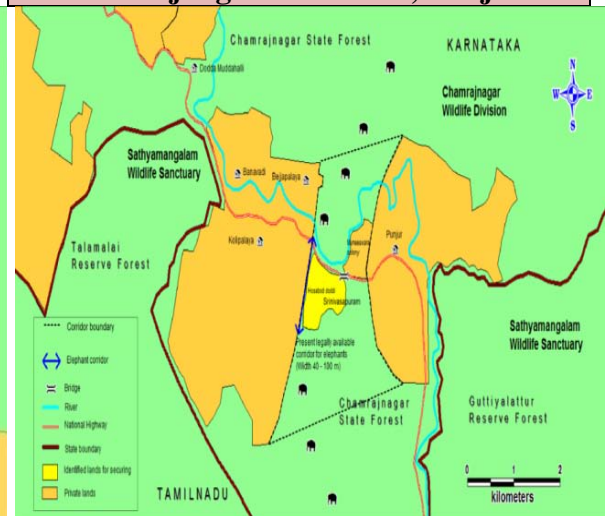
**Status:** Already a corridor exists of 0.4 km width and one km length, but needs strengthening in the form of widening.  
 Ecological Priority- High  
 Conservation Feasibility – High

**3. Chamarnaganar-Talamalai (BRT TR)**



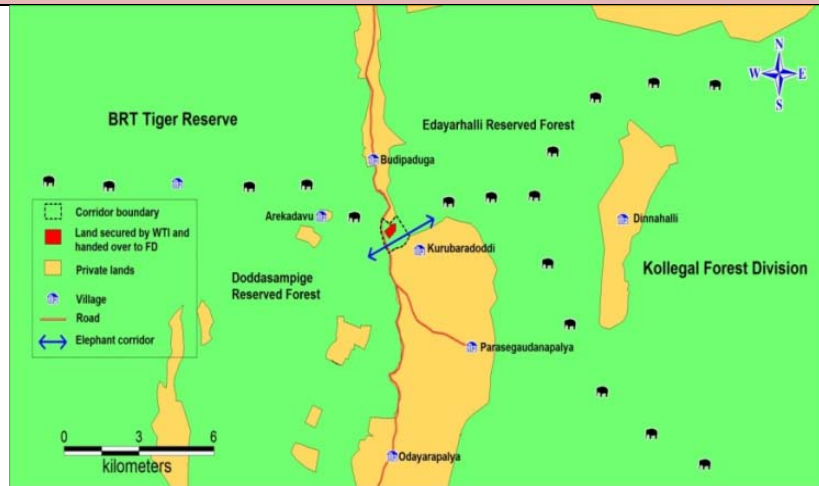
**Status:** It is an existing corridor of one km width and 1.5 km length which needs strengthening.  
 Ecological Priority- High  
 Conservation Feasibility –Medium

**4. Chamarnaganar-Talamalai, Punjur**



**Status:** An existing corridor measuring 1.5 km in width and one km in length needs strengthening.  
 Ecological Priority- Medium  
 Conservation Feasibility –Medium

### 5. Edayarahalli- Doddasampige (MM Wildlife Sanctuary)



**Status:** An existing corridor measuring 0.5 km length and two km width which needs strengthening.

Ecological Priority- High

Conservation Feasibility: -High

Illustration Source: Karnataka Forest Department

The current position with reference to these corridors is given below:

- ❖ Most common threats in all these corridors are the presence of villages along with agricultural fields and grazing of cattle in Protected Areas.
- ❖ Brahmagiri-Tirunelli corridor of Srimangala Range in Madikeri Wildlife Division is an important one with high elephant movement. This region has recorded 3,047 number of conflicts which includes two human deaths, four cases of human injury, 13 cattle deaths, 2,990 cases of crop loss, 38 cases of property loss during the period 2011-12 to 2015-16 involving payment of ₹ 1.04 crore. Though proposals for acquiring private lands for restoring this corridor were initiated during 2008 and 2012, no breakthrough has been achieved so far.
- ❖ Kaniyanpura corridor is located near Kundukere Range in Bandipur TR. This corridor which has high ecological priority and conservation feasibility needs to be restored on priority since it is used by several elephant herds and bulls regularly. Though the villagers are volunteering to forego their lands under compensation and a proposal to acquire lands from the villagers was initiated during 2013. No progress has been achieved in this regard so far.
- ❖ In case of Chamarajnagar-Talamalai corridor at Punjur of BRT TR, there was unscientific rehabilitation of tribals during 1990 from Biligiri Ranganathaswamy Hills to this corridor. Since this is an ecologically high priority corridor, these settlements have to be relocated once again to secure the corridor. However, as seen from the Tiger Conservation Plan (TCP), no action has been initiated in the matter.

- ❖ Adjacent to Edeyarahalli corridor, 25.37 acres of private land has been purchased from local farmers to widen the corridor by Wildlife Trust of India (WTI), New Delhi, an NGO<sup>26</sup>, as a first step towards securing path for wildlife movement in BRT TR. This was a pioneering effort in corridor conservation approach in India. Though these lands were purchased and gifted to the Department on 24 December 2009, the Department has failed to notify these areas as forest to bring it under Protected Area till date (February 2017).

Since restoration / strengthening of corridors require acquisition of private / agricultural lands, the quantum of lands required are to be assessed and plan of action to acquire the same had to be initiated. However, though all these corridors were identified as early as 2005 and are vital for ensuring free movement of animals in general and elephants in particular, the extent of lands required for restoring them were not assessed in all these cases. Also, the Management Plan (MP) / TCPs concerned did not contain plan of action for securing these corridors.

In order to bring new blood, establish a strong gene pool of these animals and for better conservation, which also acts as a long term mitigation measure for Human Wildlife conflict, it becomes imperative to find ways to give wildlife the right of way to move freely to the adjoining forests through establishing "Corridors". In this regard, Principal Chief Conservator of Forests (Wildlife) stated (September 2016) that the Government has announced a new scheme with a budgetary provision of ₹ 20 crore for acquisition of private areas occurring in the notified elephant corridors. However, as the acquisition involves crores of Rupees, the Department was doubtful of any outcome in the short run. During the Exit Conference, acknowledging the importance of corridors in reducing HWC incidents in the long run, the Government stated that appropriate action would be taken in this regard.

**Recommendation 2:** Speedy action may be initiated to work on strengthening of corridors by purchasing private land within a time frame. The Department may consider the implementation of the recommendations brought out in Reports like "The Right of Passage" (2005), Gajah (2010), Conservation plan for securing selected Elephant Corridors in South Western Ghats" (2011) and "Report of the Karnataka Elephant Task Force Report" submitted to High Court of Karnataka in September 2012.

#### **4.2.2 Expansion of Protected Areas**

Areas of rich and diverse biodiversity need to be identified and conserved. Similarly, areas with rare endemic species with very limited distribution need to be conserved on priority before these are lost. Hence, expansion of Protected Areas by including areas of bio-diversity is extremely necessary.

In the Western Ghat-Nilgiri Biosphere Reserve region of the State during the last five years, the areas of four Protected Areas, among the selected sample, were increased by adding the adjoining areas under approval (November

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<sup>26</sup> Non-Governmental Organisation

2011) of National Board for Wildlife. The details of these PAs like existing area and added area are given in **Table 4.4** below:

**Table 4.4: Details of areas added to Protected Areas during 2011-16**

(Area in sq km)			
Name of the NP/ WLS	Existing area	New Area added	Total
Cauvery Wildlife Sanctuary	526.95	500.58	1,027.53
Dandeli Wildlife Sanctuary	638.34	248.06	886.40
Mookambika Wildlife Sanctuary	247	123.37	370.37
Someshwara Wildlife Sanctuary	88.4	225.85	314.25
Total	1,500.69	1,097.86	2,598.55

Source: Karnataka Forest Department

Thus, a total of 1,097.86 sq km was added to the existing 1,500.69 sq km of these PAs, an increase of 73 *per cent* over the earlier area. Also, one new Protected Area *viz.*, Malai Mahadeshwara Wildlife Sanctuary covering an area of 906.18 sq km was declared during 2013. This has effectively increased the Protected Area network in the region by 2004 sq km. The increase in areas under PAs is one of the positive aspects of administration in the State and stands as one of the best examples in the country to work towards conservation of wildlife.

However, several other issues were observed during audit regarding expansion of Protected Areas which have been detailed in succeeding paragraphs.

#### **4.2.2.1 Failure to notify expansions approved by National Board for Wildlife**

##### **A. Kudremukh National Park and Bhadra Wildlife Sanctuary**

National Board for Wildlife (NBWL) is a statutory organisation constituted under the Wildlife Protection Act, 1972. NBWL serves as the apex body to review matters related to wildlife and approve projects in and around National Parks and Wildlife Sanctuaries. The approval accorded by NBWL in November 2011 included two more expansions *i.e.*, Kudremukh National Park (201.69 sq km) and Bhadra Wildlife Sanctuary (348.33 sq km) for which notifications have not been issued even after five years in spite of specific instruction of Chief Secretary, Government of Karnataka (July 2014). In a parallel development, the State Board for Wildlife (15 July 2014) discussed the proposal of the Principal Chief Conservator of Forests (Wildlife) (PCCF - WL) for increasing the area of Kudremukh National Park to 938.67 sq km (from the existing area of 600.57 sq km) by adding four Reserve Forests (RF), which included two RFs that had already been approved by NBWL in November 2011. The revised proposal was referred (July 2014) to the Sub-Committee of State Board for Wildlife (SBWL) for field visit, examination and furnishing report. The field visit had not materialised as of March 2016.

However, it was observed that in respect of the expansions already approved by the NBWL, the Government could have issued notification for expansions and pursued further expansion of Kudremukh separately. In reply, PCCF-WL



(September 2016) stated that these expansion proposals are being pursued relentlessly. Thus, though expansion of these PAs was approved by NBWL as early as 2011, the notifications are yet to be issued (February 2017).

### **B. Pushpagiri Wildlife Sanctuary**

Pushpagiri Wildlife Sanctuary was proposed to be expanded by adding 12 Reserve / State Forests<sup>27</sup> by Sri Sanjay Gubbi, Member of SBWL (July 2011). Pushpagiri WLS, Kudremukh NP and Nagarahole NPs fall in the same line and are part of the Western Ghat system. However, these pristine forests are separated due to various human development activities. Further, as per the proposal mentioned above, if these Reserve Forests (RF)/ State Forests (SF) are brought under the PA, then this would ensure connecting northern part of Pushpagiri Sanctuary to the southern tip of Kudremukh National Park, thereby providing an ideal opportunity to link two of the most important Protected Areas *i.e.*, Kudremukh and Nagarahole National Parks<sup>28</sup>. Upgrading these RF / SFs to PA would ensure that elephants have connectivity between southern and northern Western Ghats which would help in reducing Human Elephant Conflict to a large extent. This proposal included adding 433.44 sq km to Pushpagiri Wildlife Sanctuary and was accepted by the State Board for Wildlife in its fourth meeting (July 2011) and forwarded to Government (September 2011). However, this proposal was not forwarded to NBWL, the reasons for which were not on record.

However, in the meanwhile (June 2012) one more proposal was made to add the adjoining RFs of Hassan district to Pushpagiri WLS for providing connectivity to Kudremukh National Park to reduce Human Elephant Conflict. This proposal, which included addition of 213.32 sq km of seven<sup>29</sup> RFs to Pushpagiri WLS, was approved by SBWL (December 2012) and approved by NBWL in June 2013. The notification for expansion has not been issued even after three years of the approval. The major constraints for not notifying was that the area proposed for addition had several Mini Hydel Projects (MHP) and as the RFs had scope for expansion of Yettinahole Project. Further, the notification could also pose difficulties for future expansion of this project and Link Road Project to be taken up by National Highway Authority of India.

Linking Kudremukh National Park with Nagarahole National Park would have been one of the best mitigation measures in the long run to reduce Human Wildlife Conflicts by having corridor connections, as well as helping in conservation of catchment of the river Nethravathi and its tributaries. Though Karnataka has been expanding PAs, the proposal of Pushpagiri WLS expansion has suffered due to various administrative delays which need immediate intervention at the highest level.

With reference to issuing notifications for the expansions already approved by NBWL, the Government stated during Exit Conference that though socio-

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<sup>27</sup> Bhagimale, Bisle, Bisle Extension, Kabbinala, Kaganeri, Kanchanakumari, Kempole, Kiribag, Miyar, Shiradi-Shishila and Subramanya,

<sup>28</sup> Letter dated 5/7/2011 of Sanjay Gubbi, Member of State Board for Wildlife.

<sup>29</sup> Bisle, Bisle Extension, Kabbinala, Kaganeri, Kempole, Kenchanakumari and Moorkanagudda

political reasons were mainly responsible for the delay and the objective of wildlife protection could be achieved even without notification.

However, as these areas could be easily diverted for non-forestry purposes and these areas have sufficient scope for MHPs, hydrological projects, *etc.*, non-notification would make these areas prone for such activities which would have long-term negative impacts on wildlife conservation. Also, these expansions were approved three to five years ago and any more delay could further complicate the scenario.

#### **4.2.2.2 Linking three Sanctuaries of Kodagu as Greater Talacauvery Wildlife Sanctuary**

In a high level meeting of several Environmental Organisations (activists), Senior Ministers and Officers (4 August 2003), the Chief Minister desired to make the Kodagu forests a Biodiversity Zone and instructed Principal Secretary, Department of Forests, Ecology and Environment to submit a detailed report to this effect. The Principle Secretary instructed (19 August 2003) PCCF-WL to examine the same and report. In response, the Conservator of Forests, Kodagu Circle submitted (September 2003) a proposal for extending the areas of three sanctuaries of Kodagu *i.e.*, Brahmagiri, Pushpagiri and Talacauvery by adding 812.14 sq km of six ghat forests<sup>30</sup> of the district (Fig 4.5). As these forests were rich in biodiversity, very fragile and home to Lion Tailed Macaque (LTM), one of the endemic and endangered species, he reasoned that this would not only help in wildlife conservation, but additionally, also in water conservation of the monsoon rains and maintenance of the regional climatic balance.

However, it was observed that no progress has been achieved in the matter. On seeking the reasons for the same, PCCF -WL replied (September 2016) that constituting Greater Talacauvery Wildlife Sanctuary is under consideration. It was also stated that the proposal mooted in 2003 would be very difficult in the present scenario. However, since this would link the three sanctuaries and involves only Reserve Forests without requiring acquisition / notification of new forests, the Greater Talacauvery WLS, backed with necessary Feasibility Study by scientific institution / fraternity, may not be impossible to achieve.

Though Karnataka State is one of the states in the country which has taken up expansions of PAs and has declared many new sanctuaries in the last few years, it has also missed on a few opportunities to secure more areas under the PAs as brought out above which needs immediate attention and secure the place for the better conservation of our wildlife.

**Recommendation 3:** Notification for expansion of the three Protected Areas (Kudremukh National Park, Bhadra and Pushpagiri Wildlife Sanctuaries) which have been approved by the National Board for Wildlife may be expedited to ensure better connectivity between Nagarahole and Kudremukh National Parks.

<sup>30</sup>Brahmagiri Ghat, Kadamakal Ghat, Kerti, Padinalkad Ghat, Pattighat and Urti