

Chapter 7

Poaching, anti-poaching operations and Road-kills

7.1 Poaching

Poaching is one of the major threats to Protected Areas, as this has the capacity of depleting the populations of selective species of flora and fauna. Section 9 of Wildlife (Protection) Act, 1972 prohibits hunting any wild animal specified in Schedule I, II, III and IV.

Snare traps are laid by local village community to capture wild boar, small herbivores, etc. In view of incidences of tiger / leopard deaths by these snares, the Bandipur Tiger Reserve authorities intensified the anti-snare drive. During this operation conducted during 2011-13, which was done in association with two NGOs, viz. Wildlife Trust of India and Voice of Wildlife, 747 snares were removed by patrolling 1,415 km. The quantum of snares removed indicates that large scale poaching for bush meat of smaller herbivores and other species was going on in the Reserve.



Figure 7.1: Confiscated pelts of leopard and spotted deer along with antlers and tusk at MM Hills Division, Kollegal

Image Source: Karnataka Forest Department

On a scrutiny of details of unnatural deaths of wild animals furnished by the Divisions, it was noticed that 92 cases of poaching / hunting were recorded in the sampled Protected Areas during the period 2011-16. This involved 99 animals and the Protected Area-wise cases recorded have been brought out in **Appendix 5**.

It was observed that more than fifty percent of poaching / hunting cases were recorded in MM WLS which accounted for 49 animals. This was followed by Nagarahole TR with 18 animals and Dandeli - Anshi TR with 17 animals. The details furnished by the Divisions included only one tiger. Information furnished by the PCCF-WL for the period 2011-16 indicated two poaching cases relating to tigers and four cases relating to elephants in the sampled PAs. This was at variance with the Divisional details which indicated seven poaching cases of elephants during the same period.

It was, however, observed that during the period from 2011-16, out of 26 tiger poaching cases recorded in the country, nine were from Karnataka contributing to 35 *per cent* of tiger poaching cases in the country⁵⁶. Out of these, two were from Territorial Divisions and seven were from tiger Reserves of the State which included five from Bandipur, one each from Nagarahole and BRT Tiger Reserves. The above position clearly indicates that poaching continues as a serious threat to the wildlife in Karnataka despite the anti poaching operations that have been taken up by the Protected Area management and deployment of Special Tiger Protection Force in Bandipur and Nagarahole Tiger Reserves.

7.2 Working of Anti Poaching Camps

Foot patrolling is considered as one of the most important and very basic strategy for protecting the wildlife and its habitat from poaching, illegal timber cutting, firewood collection, *etc.* This is one of the old but very crucial strategies for the effective protection of Protected Area from poachers and other forest / wildlife offenders. Every day forest watchers / guards walk along the designated path, combing for unwanted elements and eradicating them if found. These foot soldiers are spread out all over the Protected Areas and at strategic points. Camps with basic facilities are built for them to stay and these are called Anti Poaching Camps (APC). The APCs are permanently manned by protection staff like Forest Watchers / Forest Guards along with temporary staff. Since the personnel deployed in APCs stay continuously in the camp, it becomes necessary to provide basic infrastructure like a building, drinking water, all weather jackets, beddings, monthly ration, solar power, wireless communication, *etc.*

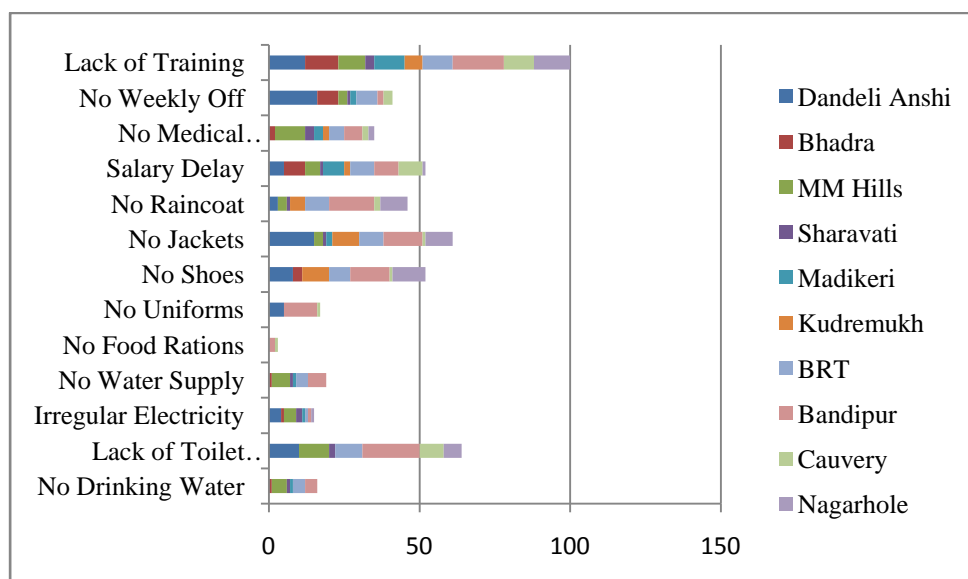
⁵⁶ The official database of National Tiger Conservation Authority, a statutory body under MoEF



Figure 7.2: Images of some Anti Poaching Camps at (a) Dandeli-Anshi TR, (b) Bandipur TR (c) Kudremukh WLD
Source: Images taken during field visits by Audit.

Since the APCs are crucial for management of Protected Areas, joint inspection was conducted by Audit in the APCs to obtain responses from the temporary staff deployed on different aspects of these units like facilities / protective equipment provided, extent patrolled, frequency of animal / poacher attacks, frequency of salaries getting delayed, coverage of medical facilities, weekly off, training provided and training requirement. Temporary staff were chosen as the facilities of permanent staff are not applicable for them. The responses were obtained through interview and the responses revealed the following:

Responses from 119 temporary APC staff were obtained in Audit (**Chart 7.1**). Most the staff at the APC highlighted non availability of drinking water, toilet facilities, water supply, medical insurance facility in MM Hills and Sharavathi WLSs. Weekly off was not being given at Dandeli-Anshi Tiger Reserve, BRT Tiger Reserve and Bhadra Tiger Reserve. The responses indicated that 84 *per cent* of temporary staff working in APCs were not given any training, which number rose to 100 *per cent* at Sharavathi and Madikeri WLSs, BRT Tiger Reserve and Nagarahole TR.

Chart 7.1: Responses of the Anti Poaching Camp staff on various facilities

Source: Responses as furnished by the staff and compiled by Audit

Further, suggestions on the topics on which trainings were found necessary were sought through responses from Anti poaching staff. The responses indicated that in most PAs, the APC staff assessed training in use of weapons, GPS and first aid as requirements for them.

Thus, the responses indicated that amenities like drinking water, toilets, water supply, power supply, protective gear were yet to be provided, salary was not being regularly paid, weekly holiday was not being allowed, staff deployed were mostly not trained and felt acute need for training for discharging their duties.

During the Exit Conference, the Government agreed to provide amenities wherever required.

Recommendation 10: Adequate amenities and training may be provided to temporary Anti Poaching Camp staff to increase the effectiveness of patrolling.

7.3 Monitoring of road-kills in Protected Areas

Though, roads and traffic are the central features of human development, they pose severe threat to forest and wildlife⁵⁷. Roads alter landscape spatial pattern and strongly interrupt horizontal ecological flows. The great impact on animal population includes road-kills, limiting population, road avoidance causing home-range shift, modification of movement pattern and barrier effect, subdividing habitat and populations.

Wildlife casualties are higher than ever before because roads dissect all forest patches rendering them to much functional fragmentation. There is no

⁵⁷ Road kills: Assessing insect casualties using flagship tax on, R Shyama Prasad Rao and MK Saptha Girish

International or National statistics documenting these events. In India, major roads, more commonly Highways, and heavy traffic pass through almost every National Park and Wildlife Sanctuary which are the last remains of fragile wild habitats, but their impact in the form of road-kills are unrecorded.

Road-kills, in simple terms, means wild animals run over by speeding vehicles in their natural habitat. Further, road-kills can be of two types:

- i. **Impact road-kills:** Here the animal is hit by the speeding vehicle and is injured internally and survives the hit initially, but might succumb later to its internal injury. Such road-kills cannot be accounted for most of the times and go unnoticed.
- ii. **Crushed or run over road-kills:** These are road-kills which are very evident as the wildlife is run over and flattened on the road and can be accounted for if monitored regularly (though some may be scavenged).

On a check of records, it was seen that 50 road-kills were documented from the selected Protected Areas as listed in the **Table 7.1** below:

Table 7.1: Recorded cases of animals killed in road accidents in Protected Areas during the period 2011-12 to 2015-16

| Species | Bandipur Tiger Reserve | Nagarahole Tiger Reserve | BRT Tiger Reserve | Dandeli Anshi Tiger Reserve | Kudremukh Wildlife Division |
|---------------------|------------------------|--------------------------|-------------------|-----------------------------|-----------------------------|
| Tiger | 0 | 0 | 0 | 0 | 0 |
| Elephant | 1 | 0 | 0 | 0 | 0 |
| Leopard | 0 | 0 | 1 | 0 | 0 |
| Gaur | 0 | 0 | 0 | 0 | 0 |
| Spotted deer | 10 | 2 | 1 | 2 | 2 |
| Sambar | 2 | 1 | 0 | 0 | 0 |
| Wild dog | 0 | 0 | 0 | 0 | 0 |
| Civets | 1 | 1 | 0 | 0 | 1 |
| Lion Tailed Macaque | 0 | 0 | 0 | 0 | 2 |
| Barking deer | 0 | 0 | 0 | 0 | 1 |
| Bonnet macaque | 2 | 0 | 1 | 0 | 8 |
| Snakes | 0 | 0 | 0 | 0 | 0 |
| Mongoose | 0 | 0 | 0 | 0 | 1 |
| Amphibians | 0 | 0 | 0 | 0 | 0 |
| Wild boar | 3 | 0 | 0 | 0 | 0 |
| Black-napped hare | 1 | 0 | 0 | 0 | 0 |
| Porcupine | 0 | 0 | 0 | 1 | 0 |
| Common langur | 0 | 2 | 0 | 0 | 0 |
| Leopard cat | 0 | 1 | 0 | 0 | 0 |
| Jackal | 0 | 1 | 0 | 0 | 0 |
| Python | 0 | 1 | 0 | 0 | 0 |
| Total | 20 | 9 | 3 | 3 | 15 |

(Source: Details furnished by Karnataka Forest Department)

From the **Table 7.1** above, it is seen that only a few PAs have recorded road-kills and most of the road-kills recorded were of flagship species and vertebrates like elephant, leopard, lion tailed macaque, *etc.* Many of the sensitive areas like Sharavathy Wildlife Sanctuary, Madikeri Wildlife Division, MM Wildlife Sanctuary, Cauvery Wildlife Sanctuary and Bhadra Tiger Reserve did not even record a single road-kill in their areas.



Fig 7.3: Images of animals killed in road accidents (a) Toad, (b) Common Langur, (c) Russels Viper and (d) Jungle Cat
Source: Images taken during field visits by Audit.

Research on wildlife road casualties and ecology is limited and the existing literature is largely focused on vertebrates, mostly large mammals.

Further, in case of Dandeli-Anshi Tiger Reserve, as per Department records, there were only three reports of road-kills during 2011-16. However, as reported in the dailies "The Hindu" dated 6/1/2016 and "Daily Mail" dated 4/6/2015, about 50 wild animal casualties in the form of road-kills were noticed in the last six years in Aurad-Sadashivgad Road, State Highway 34, passing through the Reserve. The animals killed in this road included an astonishing number of six king cobras (last two years), and eight leopards. Similarly in the case of Kudremukh NP, 15 animals have been recorded as road kills by the Department during 2011-12 to 2015-16 including civet cat and barking deer, as well as the rarest primate of the globe (which is also listed under International Union for Conservation of Nature (IUCN) as endemic and endangered), the lion-tailed macaque, protected under Schedule-II of Wildlife (Protection) Act. A total of 70 km of roads including National Highway 169 and other roads pass through Kudremukh National Park. Many lesser mammals, reptiles and amphibians of which many are endemic to Western Ghats and are nocturnal in nature criss-cross these roads and many a times end up as road-kills. None of these reptiles and amphibians were recorded in road-kills and included in the list produced to audit. However, these road-kills could be seen documented in newspapers⁵⁸ one of which indicated about animals killed in NH 13 of Kudremukh National Park. A total of nine snakes including the endemic malabar pit viper were reported killed on the road by speeding vehicles on a single day. Since reptiles are coldblooded in nature, during winters and monsoon it is quite common to find them spending more

⁵⁸ Daily O dated 21.09.2015

time on asphalted roads as roads emit radiation and reptiles use these as thermo regulator as the temperature is relatively high compared to the immediate surroundings and hence are more prone to road-kills.

In response to audit observation made in this regard, the Deputy Conservator of Forests (DCF), Kudremukh Wildlife Division conducted a short survey of road-kills in three roads of the Division during June-July 2016 the results of which have been brought out in the **Box No 4**. Further, the DCF also proposed short term measures like putting up of sign boards at important crossing points, providing passage to the lesser fauna crossing at vulnerable points and campaigning for public awareness on road-kills and following of speed limits. As a long term measure, ban of night traffic on these roads could also be considered.

From the above statistics, it is very evident that road-kills happen on all the roads passing through any wildlife area and it is also an irony that most wildlife areas are criss-crossed with roads. It is a tragedy that we are losing some of the ecologically important species without our knowledge. Amphibians, reptiles, invertebrates (especially butterflies) and lesser mammals are most susceptible to road-kills and also the ones which easily go unnoticed. It is shown from research publications that many such lesser known wildlife find it difficult to cross highways made in Protected Areas and many a times their populations consequently get isolated. Further, it is also noticed that there could be huge sex ratio difference as many of the males in search of females end up as road-kills. Such differences in male-female sex ratios can affect the viability of population in a given area. Especially, Western Ghats being the major home for many endemic species of frogs and snakes, it becomes even more imperative that certain research and documentation on these issues are taken up so as to avoid future road-kills. Infrastructure like animal underpass and overpass (see **Fig 7.4** below) can be laid, as in many foreign PAs, to safeguard threatened species from going locally extinct.

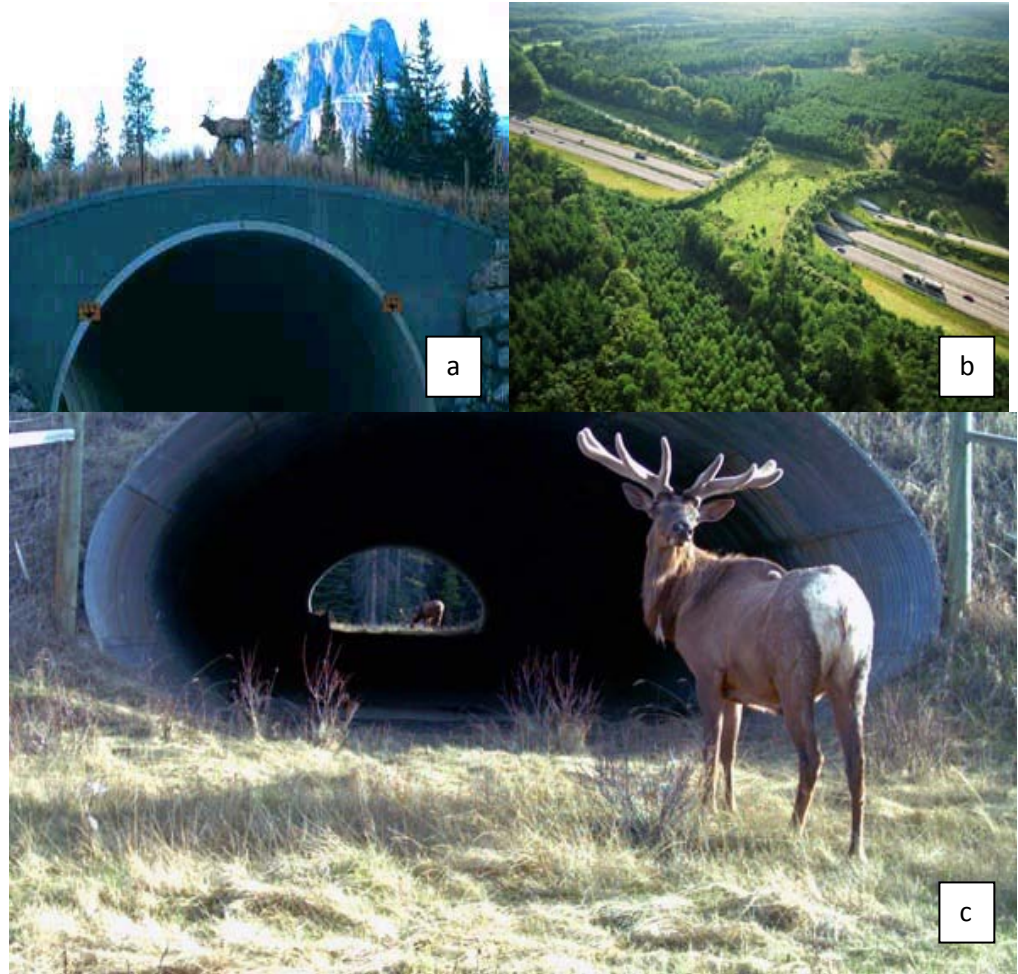


Fig 7.4: Construction of Animal Overpasses (a & b) and underpasses (c) for avoiding road-kills Source: b. <http://ecodemica.blogspot.in/2011/01/wildlife-bridge-or-ecoduct.html>

In response to the observation, during Exit Conference, the Government stated that the staff would be sensitised about the issue and proper monitoring of all the road-kills would be taken up. It was also stated that wherever necessary, building of underpasses and overpasses for movement of animals would be taken up.

Box 2**Impact of Monitoring of Road-kills**

As per details furnished, 15 road-kills were recorded during the period 2011-16 in the three Protected Areas coming under the jurisdiction of Kudremukh Wildlife Division. In this regard, an audit observation was made (May 2016) at Kudremukh Wildlife Division on improper monitoring of road-kills by the Protected Area management. In response, the management, which is in charge of three Protected Areas viz., Kudremukh National Park, Mookambika Wildlife Sanctuary and Someshwara Wildlife Sanctuary, took up monitoring of road-kills on National Highway 169, State Highway 66 at Kudremukh National Park and Kollur-Kattinahole road in Mookambika Wildlife Sanctuary between 15 June, 2016 and 31 July, 2016. This monitoring revealed an astonishing 1,338 road kills in this short period and the major road-kills observed were of frogs and snakes as shown in the Table 7.2.

Table 7.2: Details of the road-kills recorded by Kudremukh Wildlife Division during June-July 2016

| Species | Day monitoring | Night monitoring | Total |
|---------|----------------|------------------|-------|
| Snakes | 64 | 231 | 295 |
| Frogs | 130 | 709 | 839 |
| Mammals | 1 | 11 | 12 |
| Birds | 6 | 1 | 7 |
| lizards | 6 | 10 | 16 |
| Insects | 24 | 103 | 127 |
| Others | 15 | 27 | 42 |
| Total | 246 | 1,092 | 1,338 |

Analysis to identify individual road-kills to species level will give an insight into the species being affected in the road-kills in that particular area. Thus, such monitoring helps in understanding the effects of roads on local species of which any could be endemic / endangered and especially in a fragile ecosystem like the Western Ghats. Thus monitoring of roads becomes an important tool which enables the Protected Area managers to identify vulnerable points and take appropriate steps to avoid road-kills and preserve our wildlife from going locally extinct. The initiative taken up by the Deputy Conservator of Forests, Kudremukh Wildlife Division to monitor roads for road-kills is one of the best exercises in recent times in this regard and has thrown light on how a short-time monitoring too can bring out such a data. This needs to be emulated by other Protected Area Managers for better conservation of Wildlife.

Recommendation 11: All road-kills need to be monitored and not only those of flagship species in all Protected Areas. Wherever there is an alternative road, night ban of traffic inside the Protected Areas may be enforced. Underpass and overpass for wildlife may be built in sensitive areas after identifying animal paths in Protected Areas.