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भारतीय वन्यजीव संस्थान
Wildlife Institute of India

सूचना का अधिकार
RIGHT TO INFORMATION

स्पीड पोस्ट

No. WII/RTI/CPIO/2017-18(Qtr-IV)/App.37 Dated 31.01.2018

सेवा में,

श्री अलोक नेगी,
ट्रस्टी, ऑपरेशन आई ऑफ द टाइगर - इण्डिया,
300 मॉडल कालोनी, आराघर,
देहरादून - उत्तराखण्ड

विषय - सूचना का अधिकार अधिनियम 2005 के अंतर्गत सूचना चाहने के बाबत-
सन्दर्भ - आपका आवेदन पत्र दिनांक 2712.2017 जो कि इस संस्थान को 01.01.2018 को प्राप्त हुआ

महोदय,

संदर्भित RTI का अवलोकन करने की कृपा करें जो कि इस संस्थान को **सूचना का अधिकार अधिनियम 2005 के अंतर्गत** सूचना देने के लिए प्राप्त हुई है | इस सम्बन्ध में आपके द्वारा मांगी गई सूचनाओं का उत्तर संस्थान के सम्बंधित अधिकारी द्वारा प्राप्त हुआ है जो कि इस पत्र के साथ 8 (आठ) प्रष्ठों में संलग्न है |

अगर आप उक्त जानकारी से संतुष्ट नहीं हैं तो **सूचना का अधिकार अधिनियम 2005,** के तहत अधोलिखित अपीलीय प्राधिकारी को एक माह के भीतर अपील कर सकते हैं **- डॉ० वि०बि०माथुर, निदेशक एवं अपीलीय प्राधिकारी, भारतीय वन्यजीव संस्थान, पोस्ट बॉक्स 18, चन्द्रबनी, देहरादून - 248001, दूरभाष न० 0135-2640910, 2646102.**

धन्यवाद,

भवदीय,
(डा० अंजू बासेठ) 31/1/18
केन्द्रीय लोक सूचना अधिकारी

संलग्न - 8 प्रष्ठ

SPEED POST
1/2/2018

पत्रपेटी सं0 18, चन्द्रबनी, देहरादून – 248 001, भारत
Post Box No. 18, Chandrabani, Dehra Dun - 248001. INDIA
ई.पी.ए.बी.एक्स : + 91-135-2640111 **से** 2640115 **फैक्स** : 0135-2640117, **तार** : WILDLIFE
EPABX : + 91-135-2640111 to 2640115: **Fax** : 0135-2640117; **GRAM** : WILDLIFE
ई–मेल / **E-mail** : wii@wii.gov.in

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ई–मेल / E-mail : wii@wii.gov.in

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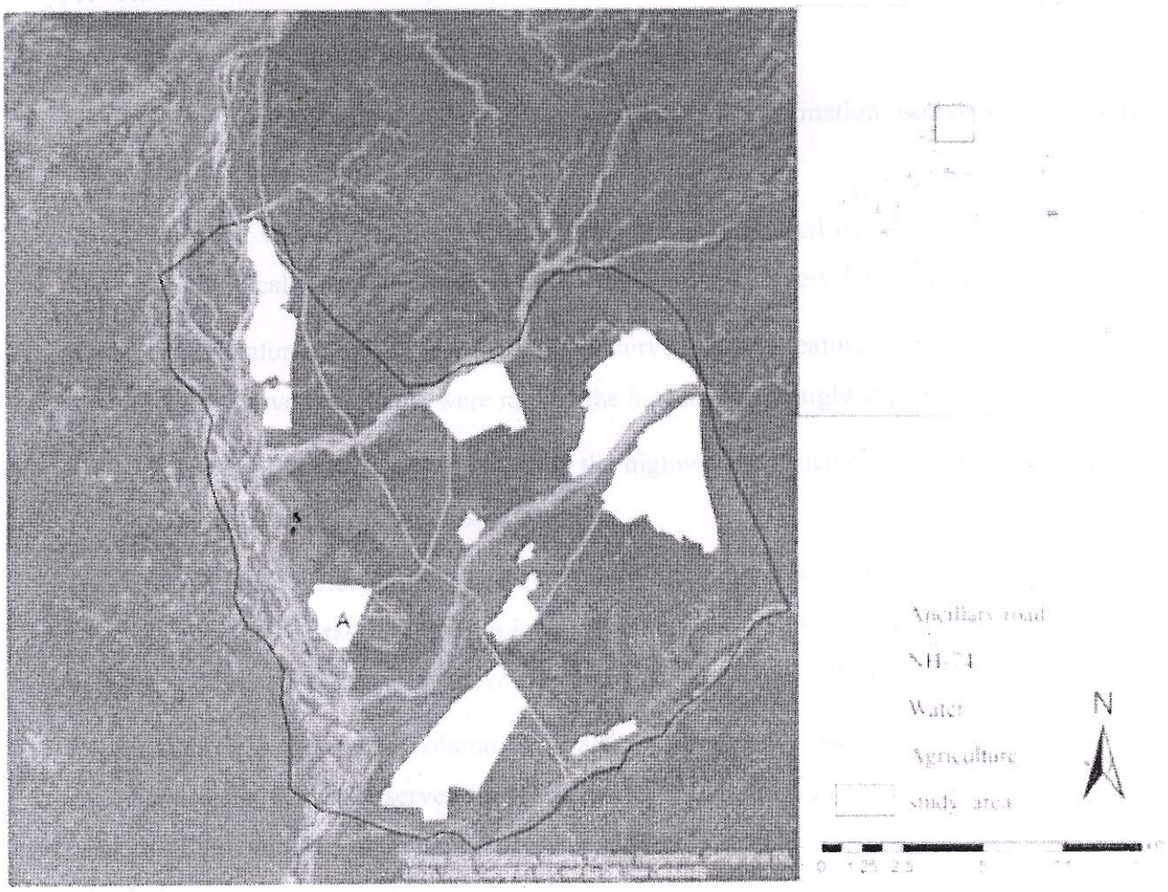
An assessment of impacts of National Highway 74 and the suggested mitigation measures to reduce the impacts

A 30km stretch of National Highway-74 cuts through Shyampur, Rasiyabad & Chidiyapur forest ranges of the Haridwar Forest Division. These ranges are contiguous with the eastern part of the Rajaji Tiger Reserve. The highway connects Chandi Bridge in Haridwar to Kotawali Bridge in Chidiyapur and experiences a huge daily traffic volume which appears to have increased over the years. A lot of wildlife mortalities have been recorded on the highway in the past. Records maintained by Haridwar Forest Division report death of 26 leopards and one tiger on this stretch of NH-74 since the last decade.



Study area: The 30 km stretch of NH74 along with an irrigation canal bisects the study area that comprises of multiple landuse categories. A represents Jhilmil Jheel Conservation Reserve

Considering the heavy mortality of wildlife due to vehicular collision as recorded in the past and the future impending road widening, this study was carried out to understand the pattern and extent of wildlife mortality as well as to suggest measures that can minimise the impact of NH-74 on wildlife in the area. Permission to carry out field work was provided by the Chief Wildlife Warden, Government of Uttarakhand. The study was done as part of M.Sc dissertation by Shri Sultan under the supervision of Dr. Bivash Pandav and Dr. Bilal Habib.

STUDY DESIGN AND FIELD METHODS:

Systematic information on road kills was collected from September 2016 till April 2017. Sampling for wild ungulate abundance estimation and road side habitat use was carried out between December 2016 and April 2017.

Recording wildlife mortalities on the highway

The highway was divided into 500m segments and information on segment specific characteristics such as

- On-road visibility per 100m (in metres) – was measured using a rangefinder. Based on this I calculated the average on-road visibility for every 500m segment.
- Road feature (straight, undulating and curved) - road feature categories were ranked, where curved segments were ranked the highest and straight segments the lowest
- Number of animal trails intersecting the highway- All such trails were walked and the track log was maintained using a GPS.

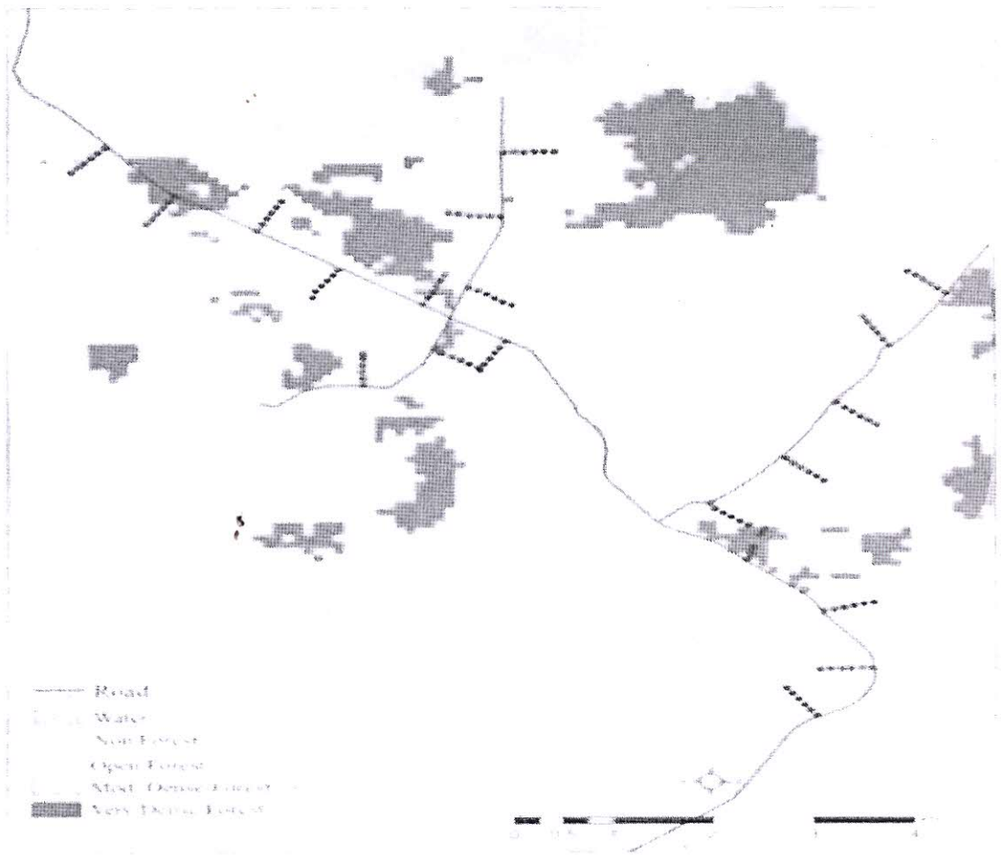
The highway was systematically surveyed daily on a motorbike at a constant speed of 15 km/h at dawn (0600 hrs- 0800 hrs) to look for wildlife mortalities. Species, location, distance to cover and broad vegetation type were recorded at every road kill location.

Information on daily traffic volume and traffic heterogeneity was also collected. This was done by 4 teams, which observed the traffic continuously for 6 hrs each. Tally counters were used to count number of vehicles of each type (Light vehicle, Heavy vehicle and Two-wheeler).

Use of roadside habitat by large mammals

Intensity of habitat use was estimated in plots that were laid at increasing distance from the road. Pellet plots of 20 m x 2 m were laid at six distance classes of 0m, 100m, 200m, 300m, 400m and 500m away from the road on transects perpendicular to it. A total of 20 such transects were laid on either side of the road, each separated from other by 1km. Twenty such sets of plots were laid with transects separated by 1km on the road. To assess if vehicular traffic has any impact on the habitat use, ten transects were perpendicular to the NH-74 (High traffic volume) and ten transects perpendicular to the two ancillary roads (Negligible traffic volume).

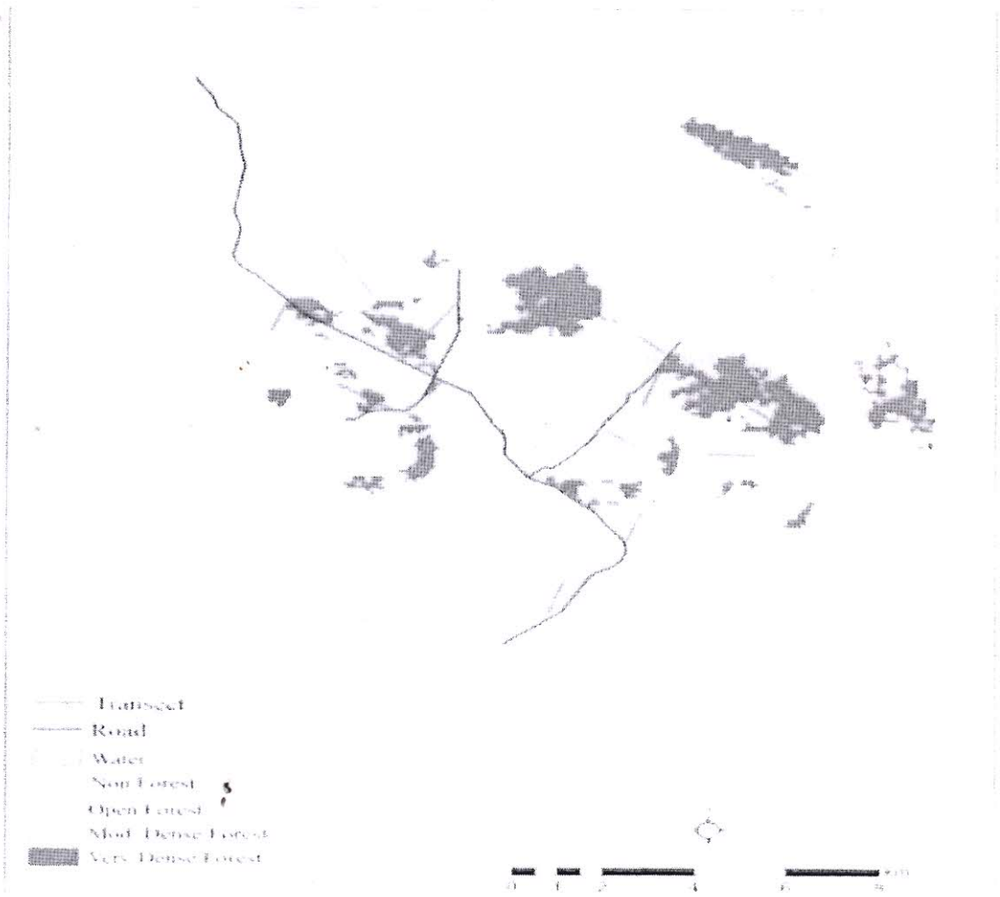
Within each plot number of pellets (total count) of chital (*Axis axis*), sambar (*Rusa unicolor*), black-naped hare (*Lepus nigricollis*), wild pig (*Sus scrofa*), elephant (*Elephas maximus*), rhesus macaque (*Macaca mulatta*) and Terai langur (*Semnopithecus hector*) were noted.



Pellet plots laid perpendicular to the road at increasing distance classes (0m, 100m, 200m, 300m, 400m and 500m)

Density estimation of wild ungulates:

15 spatially explicit line transects were laid across the study area (1 transect/4sq km grid). Transect lengths varied from a minimum of 1.2 km to maximum 2 km. Each transect was walked thrice during the study period. The total survey effort was 68.10 km. Transects were walked by a team of two observers in the mornings (06:00 to 09:00). Information on species, group size, sighting angle (measured using a hand-held compass) and sighting distance (measured by a laser range-finder) were recorded.



Location of 15 line transects sampled in the study area to estimate wild ungulate abundance

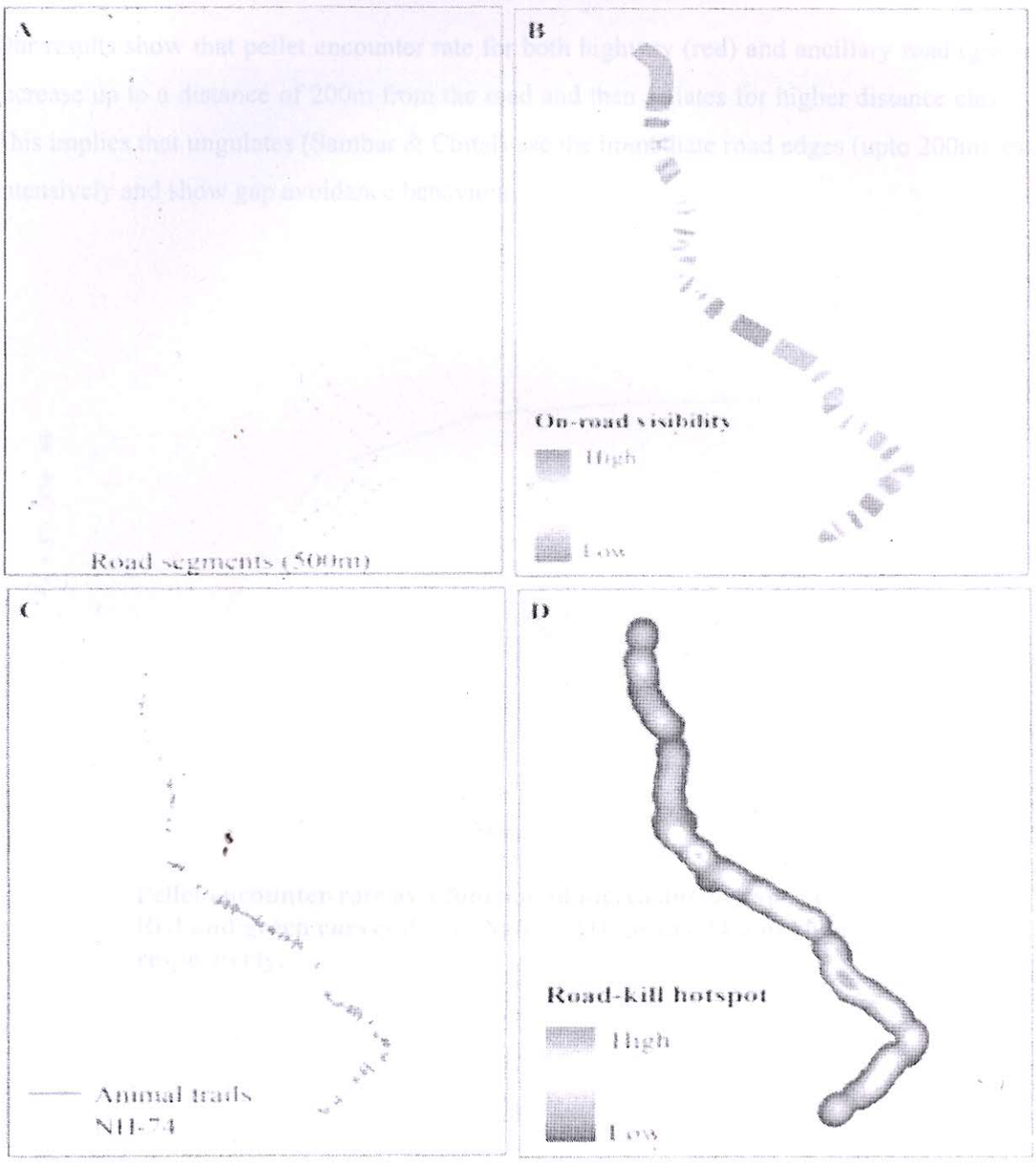
RESULTS:

Wildlife Mortality:

A total of 222 road-kills of four different taxa (reptiles, amphibians, birds and mammals) were recorded from 5th September 2016 to 18th April 2017 (Appendix II). Total road-kills detected on the NH-74 comprised of 37 species (Reptiles= 8, Birds= 12, Mammals=17). In

terms of number of road-kills, mammals (n=127) were detected the most followed by birds (n=56) and reptiles/amphibians (n=31).

Based on location of animal mortalities a roadkill heatmap was generated. Number of animal trails intersecting the highway was found to be the primary factor governing the number of roadkills per road segment.



A represents NH-74 subdivided into 500m segments; B represents on-road visibility (in metres) in each segment; C represents number of animal trails intersecting the highway and D shows road-kill hotspots on NH-74

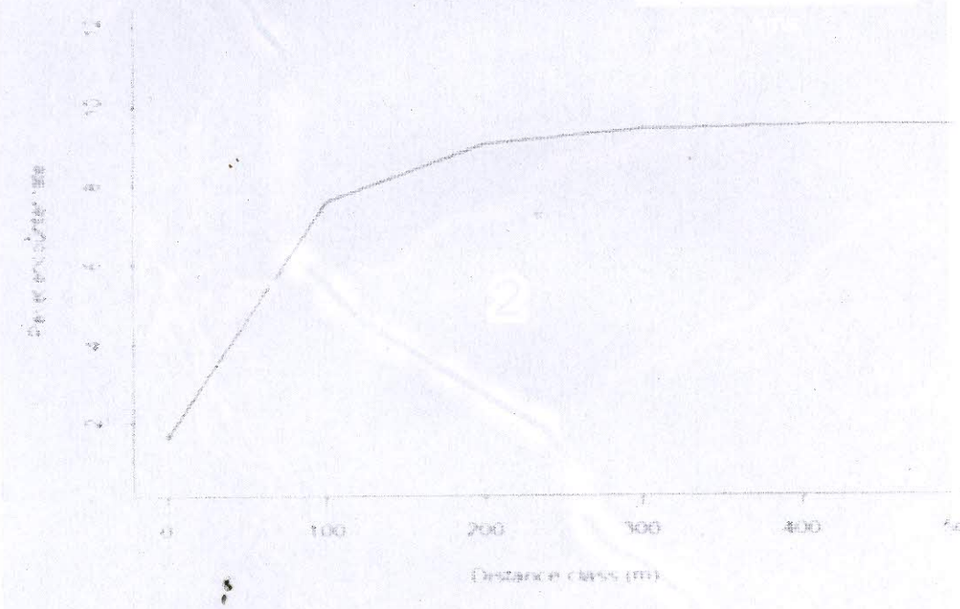
(59) (6)

Ungulate density estimate:

It was found that Sambar and Chital occur at high densities in the study area. The estimates for Sambar and Chital are 14.92 (± 7.28) & 24.16 (± 7.09) respectively.

Pellet encounter rate as a proxy for intensity of habitat use:

Our results show that pellet encounter rate for both highway (red) and ancillary road (green) increase up to a distance of 200m from the road and then satiates for higher distance classes. This implies that ungulates (Sambar & Chital) use the immediate road edges (upto 200m) less intensively and show gap avoidance behaviour.

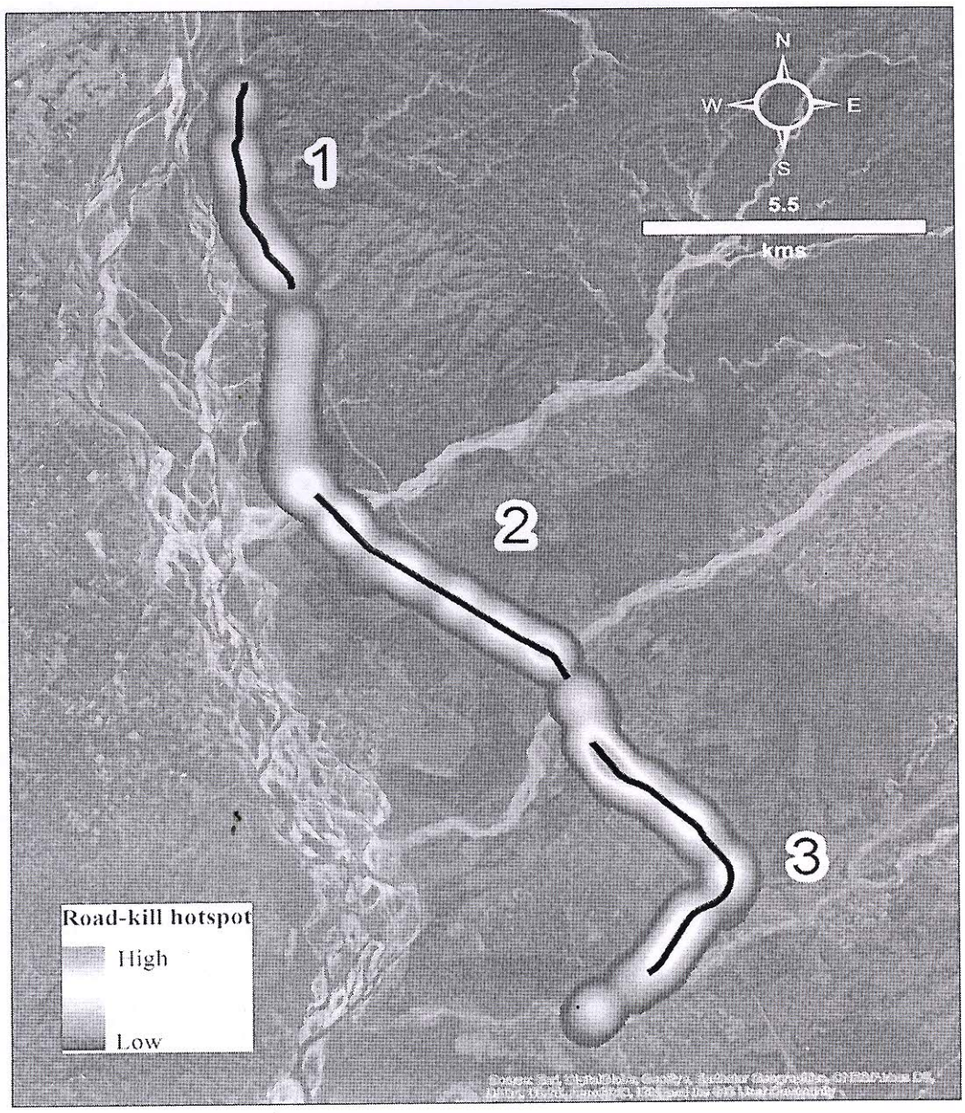


Pellet encounter rate as a function of increasing distance from the road. Red and green curves depict National Highway 74 and ancillary road respectively.

(5-B) (7)

Mitigation:

Since the major roadkill hotspots found in our study are clumped in 5-6 km stretches, any point based mitigation measures (rumble strips, wildlife fencing, overpasses and underpasses) seem ineffective. Therefore, I suggest three stretches where mitigation structures are crucial to reduce the road kills. They are: 1) Chandi Bridge to Tedhi puliya 2) Peeli river to Rawasan river and 3) Gendikhata to Chidiyapur



Mitigation: Building of flyovers suggested through 3 stretches on NH-74.

1- Chandi Bridge to Tedhi puliya 2- Peeli river to Rawasan river 3- Gendikhata to Chidiyapur

In the identified stretches, construction of flyovers can help wildlife moving underneath the structure while vehicles can pass unhindered over the flyover. Further, till flyover is fully commissioned, as a stopgap measure, it is important to erect speed control humps in locations where many wildlife trails intersect the road. Furthermore, there is an urgent need to put up more signages alongside the entire stretch of the road alerting motor vehicle drivers of animal crossings.

ATTESTED

CPIO, Wild Life Institute of India, Dehradun