



Technical Report

Rapid Assessment of Potential
Electrocution Threats to Elephants in
Select Areas of Haridwar Forest Division
February 2021



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February 2021

Component of the WII-UKFD collaborative project on “Mitigation of Human–Elephant Conflict in and around Rajaji Tiger Reserve with emphasis on mitigation strategies during Kumbh 2021”

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Rapid Assessment of Potential Electrocution Threats to Elephants in Select Areas of Haridwar Forest Division

Introduction: Elephants are large and charismatic species that have become flagships for promoting conservation across large landscapes. The largest terrestrial mammal in Asia, once ranged widely from the Tigris-Euphrates river system in the west, throughout Asia south of the Himalayas to east to China (Santiapillai and Jackson 1990). Today the distribution of the Asian elephant (ca. 35,000-50,000 wild elephants) covers only a fraction of its former extensive range, and includes 13 countries from the Indian subcontinent in the west to Indo-China in the east. Asian elephants in the wild inhabit a land area of about 439,000 sq. km, of which only about 132,000 sq. km (30%) are protected (Kemf and Santiapillai 2000). Also many populations are highly fragmented and endangered and optimistic estimates indicate that only eight populations of Asian elephants have more than 1,000 individuals in a contiguous area (Kemf and Jackson 2000). Managing large mammals like elephants need access to information on their population densities, demographic data, distribution, their effect on the vegetation and their ranging behaviour. It is important to understand how the elephants range in and use the forest – human-use area matrix. The knowledge of their ranging patterns becomes invaluable in managing HEC.

Human–Elephant Conflict: Many large mammals such as elephant, rhino and tiger often come into conflict with people by destroying agricultural crops and even killing people, thus providing a deterrent to conservation efforts. Human-elephant conflict (HEC) is the resultant of complex interplay of four key factors: (1) habitat, (2) elephant population, (3) elephant behavior, and (4) people that leads to initiating, escalating, or sustaining HEC (Desai and Riddle, 2015). In order to manage HEC in a comprehensive manner, it is essential to understand how these factors operate in the context of the landscape. Also, due to the complex interplay of the factors involved in managing HEC and the sheer scale/magnitude (driven by the biology and ecology of the mega herbivore), HEC management becomes more of a journey of long, sustained and well-informed efforts, rather than arriving at a destination. Failure to understand these factors and not catering to the root cause, but only superficial symptoms ensures that the processes that cause HEC persist, forcing wildlife managers to deal with constantly escalating HEC situations. This leads to degradation of the overall conservation effort and potential of various elephant ranges and populations. In order to develop adaptive management plans based on the factors that cause or contribute to HEC, it is important to first understand the context and background of these factors.

Threat of electrocution: Asian elephants are endangered species that are threatened across range countries by various anthropogenic factors. Amidst growing concerns about their long-term conservation potentials, major conservation efforts are required to ensure the same. Major threat to elephant populations across landscape includes habitat degradation, habitat loss, poaching, trafficking of live animals and retribution killing (an outcome of HEC). HEC and infrastructure-related mortalities are overriding, especially in human–elephant interface areas that are increasing largely owing to extensive forest clearances, habitat degradation and fragmentation. In the context of HEC, electrocution in particular has become a serious threat to elephant conservation.

Added to this, electrocution has surfaced as one of the major threat to elephants. Every year, on 50 elephants succumb to this. Between 2009 and 2017-18, 461 elephant have been electrocuted, as per the records of Ministry of Environment, Forests and Climate Change. A closer look at the data reveals that States in the eastern and northeastern region of the country have accounted for most of these deaths — in Odisha, 90 elephants died of electrocution; 70 elephants died of electrocution in Assam; 48 elephants in West Bengal; and 23 elephants in Chhattisgarh.

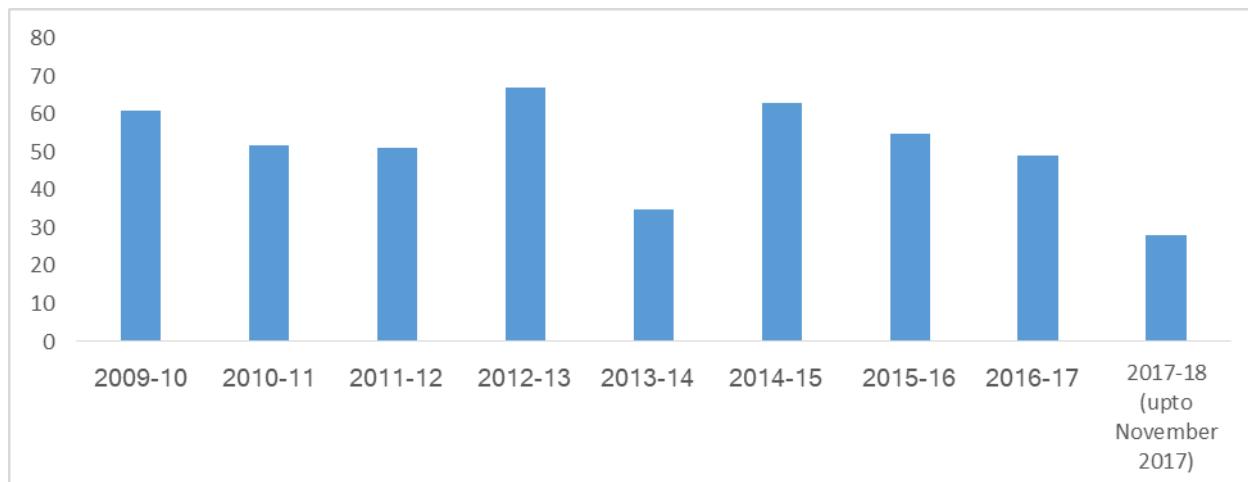


Figure 1: Elephant deaths due to electrocution across India, 2009 to 2018

Present study: To help in gaining fine-scale understanding about the ranging behaviour of the crop raiding bulls that regularly come into conflict with humans, Wildlife Institute of India (WII), in collaboration with the Uttarakhand Forest Department (UKFD) has been carrying out a study on “Mitigation of Human-Elephant Conflict in and around Rajaji Tiger Reserve with emphasis on mitigation strategies during Kumbh 2021”. As a part of the objective, the ranging pattern of free ranging elephants is being studied. A total of 22 bulls have been identified to range between the western and eastern ranges of Haridwar Forest Division. These bulls have been regularly observed to raid crops. Female groups in the study area have never been observed to cross the Ganges and raid crops in the western ranges. Besides intensive monitoring of these elephant, a total of 4 bulls have been satellite collared in Anjani chaur, Gurukul islet and Dassowalla of Haridwar Forest Division under the project. The movement data obtained from the collars are pivotal in understanding fine-scale spatio-temporal ranging behaviour of elephants in the area. The insights gained can be effectively used to develop mitigation strategies for human-elephant conflict.

Driven by their life-history requirements, elephants generally range over a large area. In areas where their habitats are not contiguous and interspersed with human-settlements and crop fields, elephants and humans often end up interacting with each other, due to the overlap of their spatio-temporal ranging behaviour. These interactions mostly result into conflict that manifests in forms of crop damage, house damage, injury and fatality on both sides. As the elephants range in the human-use areas, they are exposed to threats of myriad forms ranging from threats of poaching, disease to electrocution.

Electrocution-associated mortalities can be transmission related as well as crop guarding related. Transmission related is largely owing to lack of dialogue between line agencies and poor design whereas crop guarding related can be directed (towards elephants, which is rare) and unintentional (set for other crop raiding animals). These incidents of electrocution, especially of older/experienced animals not only removes individual elephants from a population, but can also have profound consequences on elephant social organization, potentially affecting dominance hierarchies thereby further influencing spatial distribution of elephants.

Study Area: The study area extends over the eastern and western ranges of Haridwar Forest Division and is part of the Rajaji landscape adjoining the southern boundary of the Rajaji Tiger Reserve (RTTR). While the legal protection rendered by the government checks the impact of anthropogenic activities inside the RTTR boundary, rapidly and radially expanding cities on the outskirts of the reserve and cascading effect of developmental activities (road, rail networks) has seen rapid change in the land-use and land cover in the landscape. An estimated population of about 368 elephants is found in this area (Wild Asiatic Elephant Population Estimation Uttarakhand, 2015). The study area is inhabited by 1.9 million people.

The study area can broadly be categorized as forested areas or the daytime refugias of these elephants, human settlements and agriculture fields. While most of the human settlements and crop fields are present in the western ranges (Haridwar and Laksar), the eastern ranges mainly constitute of forested areas with pockets of human settlement and crop fields in *andar* Peeli, Laldhang – Mithiberi complex, Tantwala, Shyampur-Kangri complex and Gaintikhata-Laharpur complex. These pockets of human-use areas are surrounded by forests, which often serve as daytime refugia for the elephants.

Based on the ranging pattern of elephants across the Ganges, the study area comprises of the following ranges of Haridwar Forest Division:

- a) Haridwar range (West of river Ganga)
- b) Laksar range (West of river Ganga)
- c) Shyampur range (East of river Ganga)
- d) Rasiabad range (East of river Ganga)
- e) Chidiyapur range (East of river Ganga)

Present Scenario: While the food, water and shelter offered by the habitat within the park boundary caters to most of the requirements of the elephants, agricultural crops such as sugarcane, paddy and wheat cultivated in the human-use areas (adjoining the elephant refugia) serve as major attractants for the elephants. Along with the villagers and their agriculture based economy, a sizable population of over >4000 nomadic pastoralists (i.e. Gujjars) and their livestock (>8300 cattles) are dispersed along the periphery of RTR. The vast overlap of resources spread across the human-use – forest area matrix and the intensive use of the same by both results in inevitable conflict with people living in these areas adjoining the RTR. Added to this, the developmental pressures exerted in the landscape has seen a surge of linear intrusion networks in the area. e.g. widening of NH74. With unique young bulls venturing into the human-use areas, their unplanned drives by the locals and consequent adding up of the spatio-temporal knowledge to their home range (cognitive map), HEC in the landscape may escalate in the future.



Figure 2: Elephant negotiating NH34 to reach the Ganges to access crops on the western ranges of Haridwar forest division.

Why do elephants raid crops?

Previous studies from different regions have ascribed the raiding behavior to higher palatability and nutritive value of cultivated crops compared to wild plants (Sukumar, 1989, 1990). Crop raiding behaviour is also a manifestation of selection pressure (due to higher variance in reproductive fitness) operating on the males of a population, which prompts them to adopt the high-risk, high-gain strategy to promote reproductive success (Trivers, 1985). Similar to the pattern observed in this landscape, fine scale investigations from other elephant range areas have suggested that while males choose to take risks in obtaining that extra nutrition from cultivated crops which could be converted into better growth, body condition and a successful expression of musth, all of which may mean an enhanced reproductive success (Sukumar & Gadgil, 1988), the females tend to trade off food for safety (Williams et al., 2001). While both adult and sub-adult males have been observed to risk crossing the Ganges and raid crops along the western ranges of Haridwar forest division, female groups have mostly been observed to remain restricted to the forest patches of Shyampur, Rasiabad and Chidiyapur ranges.

Spatio-temporal ranging pattern: While the pattern of crop raiding behaviour exhibited in the landscape is typical, what makes the context stand out is the spatial pattern or the landscape configuration. Intensive on ground monitoring, coupled with satellite-based radio telemetry has clearly revealed the movement pattern of bulls in the area, as they descend from their forested habitats (eastern bank of the river) under the garb of low light (dusk hours), cross the Ganges (most as all-male groups) and enter into crop fields in the human-use landscape (mainly on the western banks of the river), only to return back to their refugia in the early hours of the dawn. Such intensive monitoring has also brought forth knowledge about the identity of bulls operating in the area, their association pattern, habitat use and multiple routes (entry-exit points) along the banks of the river. All such insights gained from the ground are pivotal to gain insight about HEC in the region and manage the same.



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Figure 3: An all-male group crossing the Ganges from the eastern range to the western range of Haridwar Forest Division during dusk hours to raid crops.

Methodology: As part of the project, an adult bull was collared on 15th October in Dassowalla, Rasiabad, Haridwar Forest Division. On 23rd Nov' 20, the bull was found to be electrocuted on the islet close to Bishanpur kundi village of Haridwar range. Post this incident, the field team comprising of researchers and field assistants started to actively scan for critical points that posed a similar risk to elephants in the landscape. To understand the vulnerability of elephants, we tried to understand the distribution of "critical points". Identification of critical points were done based on the risk they posed to elephants from being electrocuted. These **critical points** were transformers and power lines hanging at a height within the reach of an elephant (≤ 20 feet), in the ranging area of elephants.



Figure 4-6: Critical points falling within the ranging area of collared bulls..

A survey of critical points in Shyampur, Chriyapur, Rasiabad, Haridwar and Laksar range of Haridwar forest division was carried out. These ranges were scanned for 8 hours everyday for 20 consecutive days, from 25/01/21 to 14/01/21 to document and record the GPS coordinate of these critical points. To gain a coarse understanding of the electrocution potential of the elephants ranging in the study area, we overlaid the ranging area of 4 collared bulls (along with the GPS coordinates of other elephants ranging in the area), with the GPS coordinates of the critical points.



Figure 7: Association of UKM7 with other males

To determine the extent of ranging pattern of the crop raiding bulls from the western bank of the Ganges, we used ArcGIS to select all the hourly GPS fixes of collared bulls falling on the western ranges of Haridwar forest division and used the “near tool” in ArcGIS to find the distance between these points and the western bank of the Ganges.

Findings

- A total of 373 critical points were mapped in the study area (**Annexure I**).
- Most of the agriculture fields raided by the bulls fall within 2.5 km from the western bank of the river, with occasional crop raids extending upto 4.5 km.
- A total of **137** critical points fall directly within the regular ranging zone of these elephants (collared and non-collared bulls that regularly raid crops) (**Annexure II**).
- There are also numerous critical points (annexed) in areas adjoining the Rajaji Tiger Reserve, such as Mithiberi, Rasoolpur, Laldhang, Peeli and boundaries of Chidiyapur range (**Annexure I**). These too needs to addressed with priority as some female groups and bulls have also been reported to regularly range in these areas.

S. No.	Range	Critical points
1	Haridwar	183
2	Laksar	8
3	Shyampur	79
4	Rasiabad	10
5	Chidiyapur	93

Table1: Critical points in different ranges of Haridwar Forest Divisions



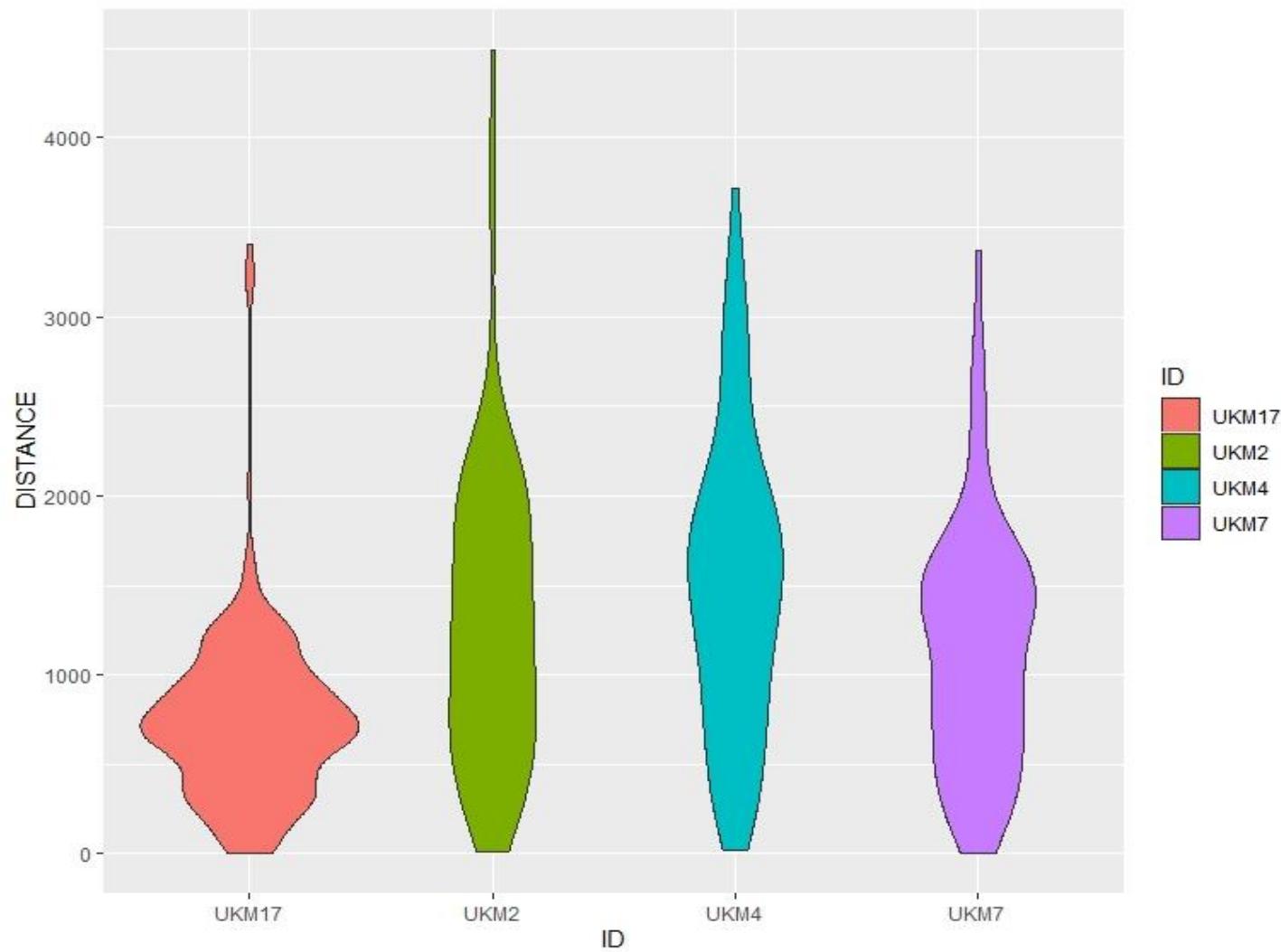


Figure 8: The ranging extent of collared elephants (and other associated bulls) from the western bank of the Ganges, into the western ranges of Haridwar Forest Division.
The Haridwar – Laksar railway line forms the western most boundary or the ranging extent of the crop raiding bulls.

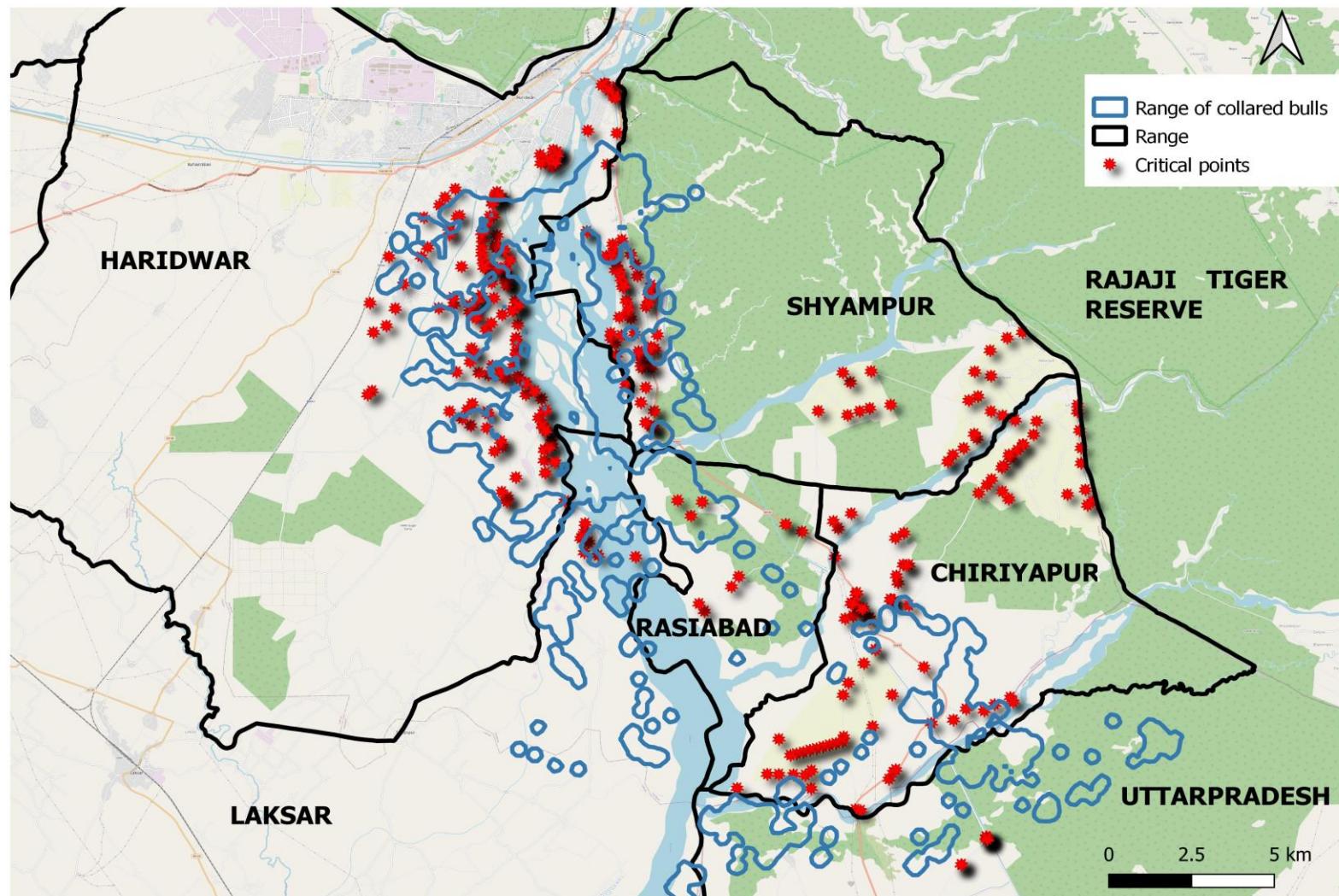


Figure 9: Map highlighting the distribution of critical points (low hanging power lines or transformers) in the elephant ranging area

Addressing threats

Awareness: Routine awareness programmes may be conducted among the general public regarding the importance of conserving elephants in a critical landscape and educating them on effective and safe alternatives for crop protection.

Participatory approach to addressing the problem: Since these critical points are of a nature that involves other line agencies, and also since the lands extend beyond the jurisdiction of forest department, it is imperative that multiple stakeholders come together to address these threats in a participatory approach. It would require cooperation, coordination and communication from all the stakeholders to effectively diminish the threat.

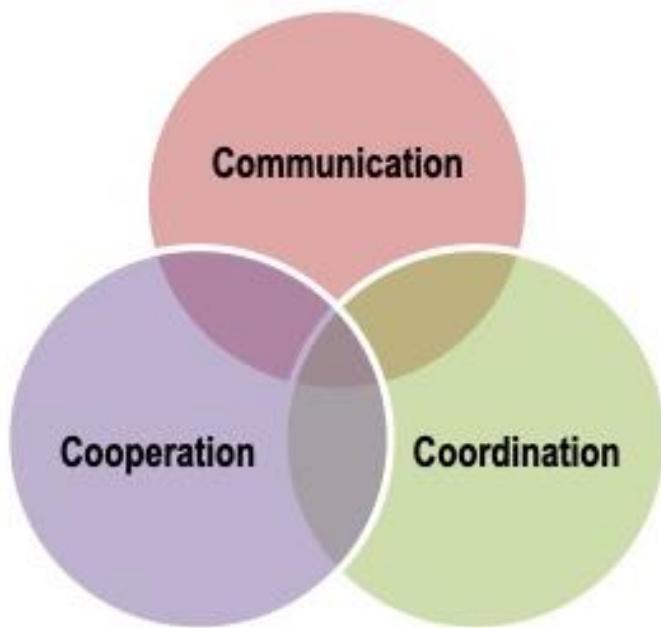
Law enforcement: These critical points also require the legal and executive agencies to get involved to make sure that these powerlines and transformers are legally approved before installation. Both the site of installation and their use needs time to time inspection by the law enforcement agencies to curtail any possibility of threat emanating from them.

Periodic surveys/monitoring: Due to the very nature of these structures (power lines, transformers, poles etc.) and also the weathering effect due to wind and rain, these critical points need to be regularly monitored and appropriate alterations/ modifications/ replacements should be done on time to time basis. In absence of such measures even the present "non-critical" structures would fall into the "critical" category.

Recommendations

1. It is appropriate that all the structures (transformers, power lines) as discussed in the report are duly protected/ encased/ fenced so as to deter the elephants and other animals from approaching or interacting. In critical stretches, especially at the interface of road and agriculture fields (that are likely to be accessed by elephants), the power lines should be monitored on a routine basis.
2. Since, the maximum distance covered by the elephants from the western bank of the Ganges extends till 4.5 km, it is imperative that all the critical points falling within this distance are regularly monitored and attended.
3. Due to the nature of the transmission wires and its vulnerability during the monsoon, a special monitoring team needs to scan for these points and attend them at an urgent basis. Since these 373 points are not fixed and may change over time, it is imperative to conduct regular maintenance and surveys by respective teams to avoid any untoward incidents. This would necessitate coordinated efforts among line agencies.
4. These critical points require the legal and executive agencies to get involved to make sure that these power lines and transformers are legally approved before installation and adequately address the perceived challenges faced by the animals.
5. The directives and guidelines issued by Karnataka Elephant Task Force Report 2012 can form a basis for effective management of powerlines in elephant habitats.
6. Relevant regulatory provisions of Electricity Act, 2003 and Wildlife Protection Act, 1972 may be referred to for additional information.





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Beat wise maps of critical points in Haridwar Forest Division

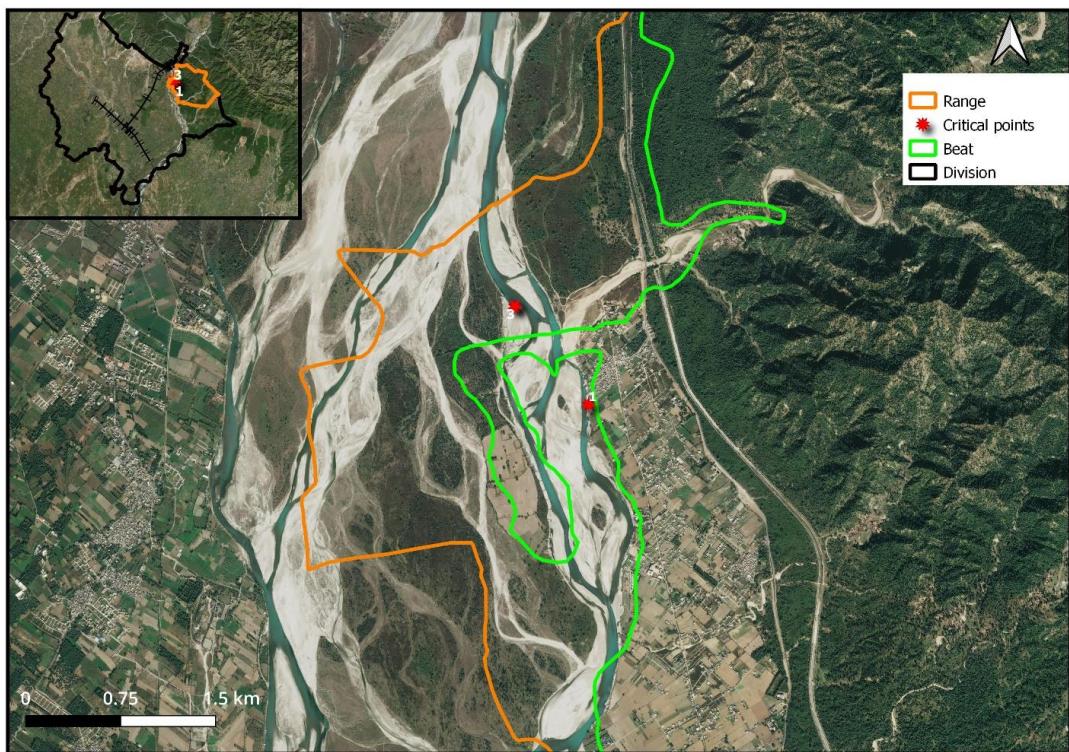


Figure 10: Critical points in Anjani beat of Shyampur range

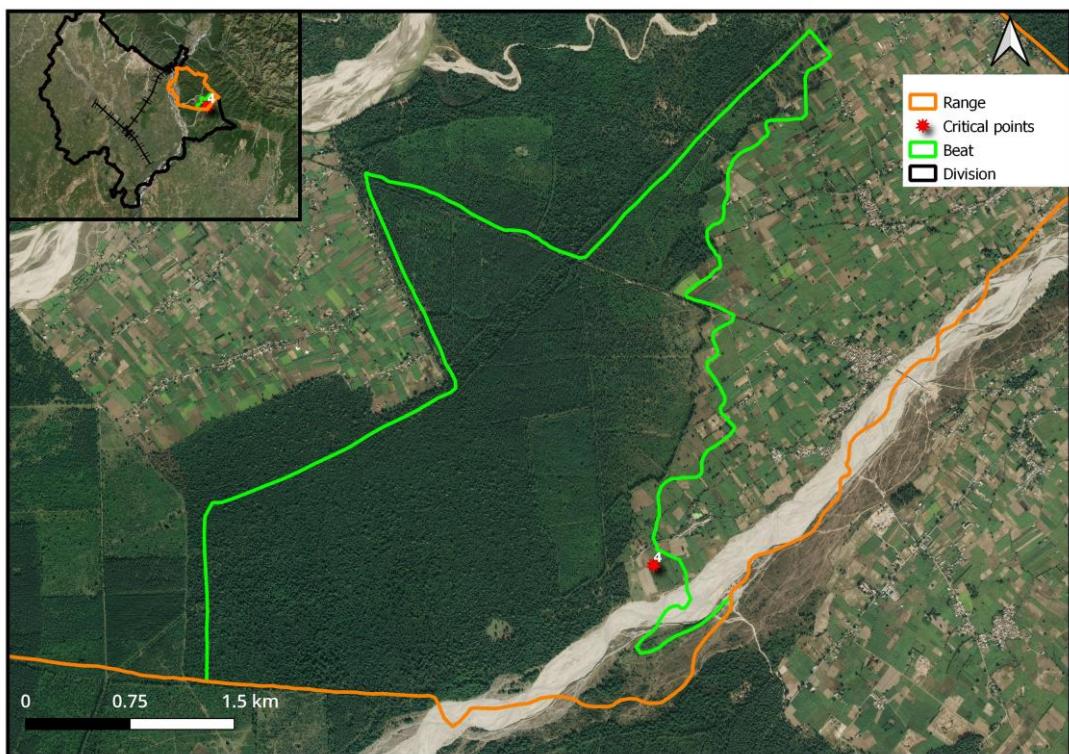


Figure 11: Critical points in Mithiberi beat of Shyampur range

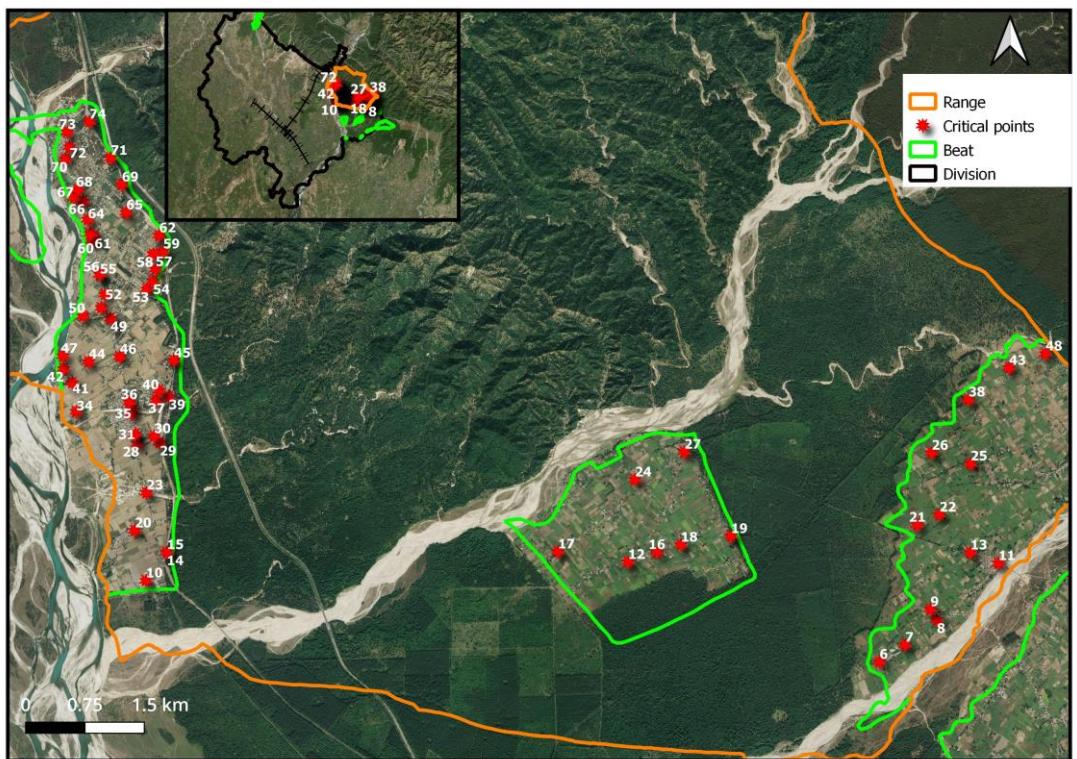


Figure 12: Critical points in non-forested areas (NF) of Shyampur range

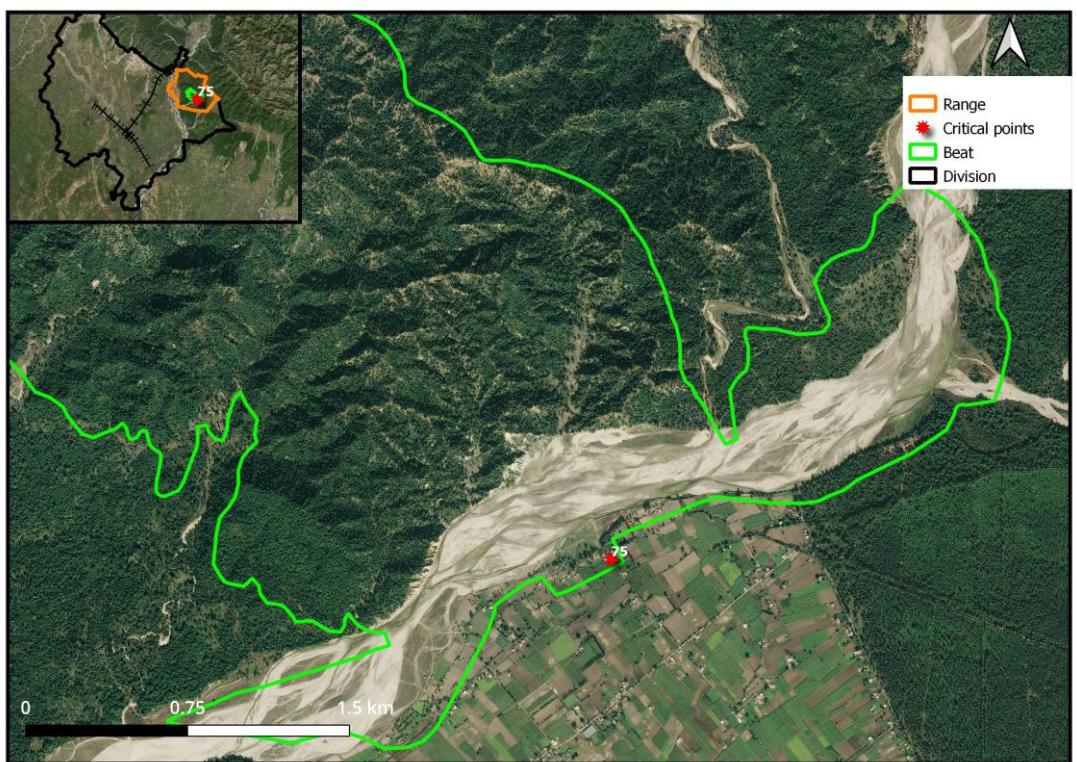


Figure 13: Critical points in Peeli 1 beat of Shyampur range

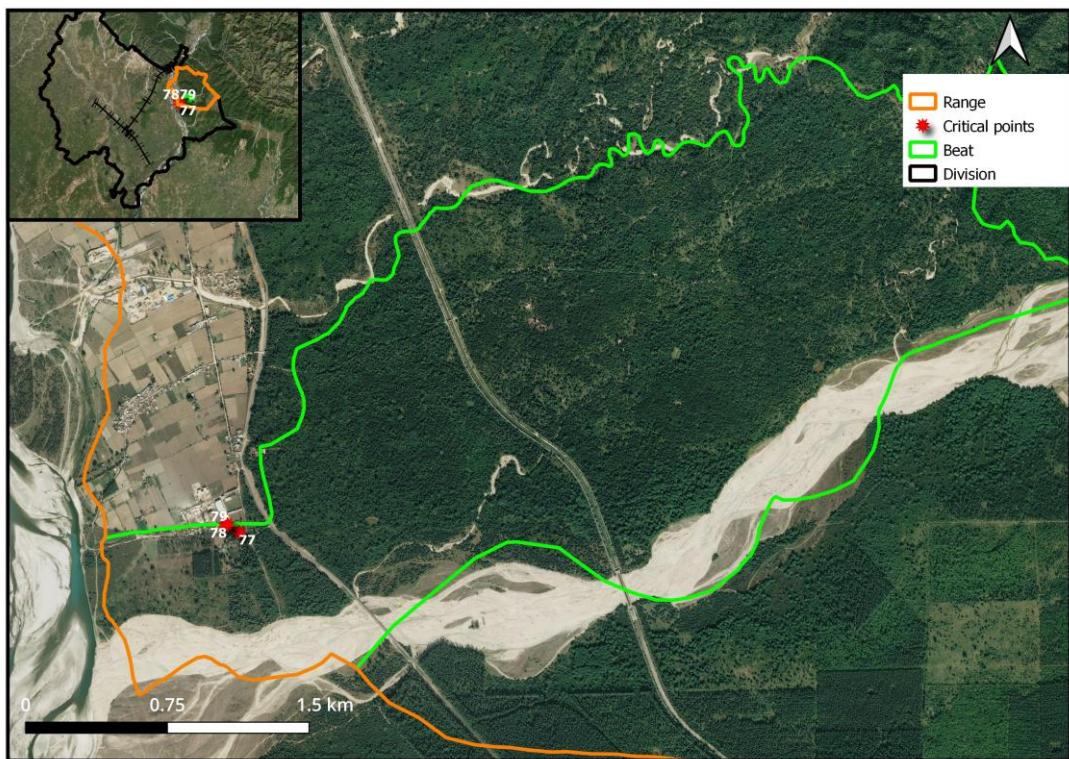


Figure 14: Critical points in Sajanpur beat of Shyampur range

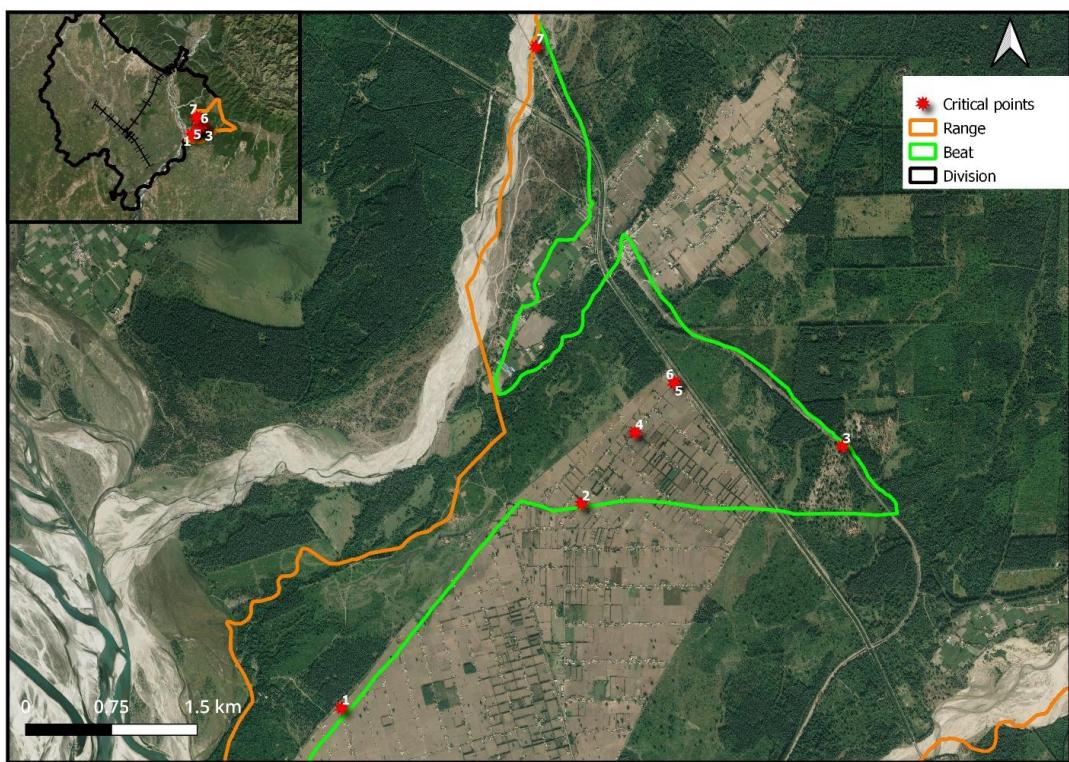


Figure 15: Amsot beat of Chidiyapur range

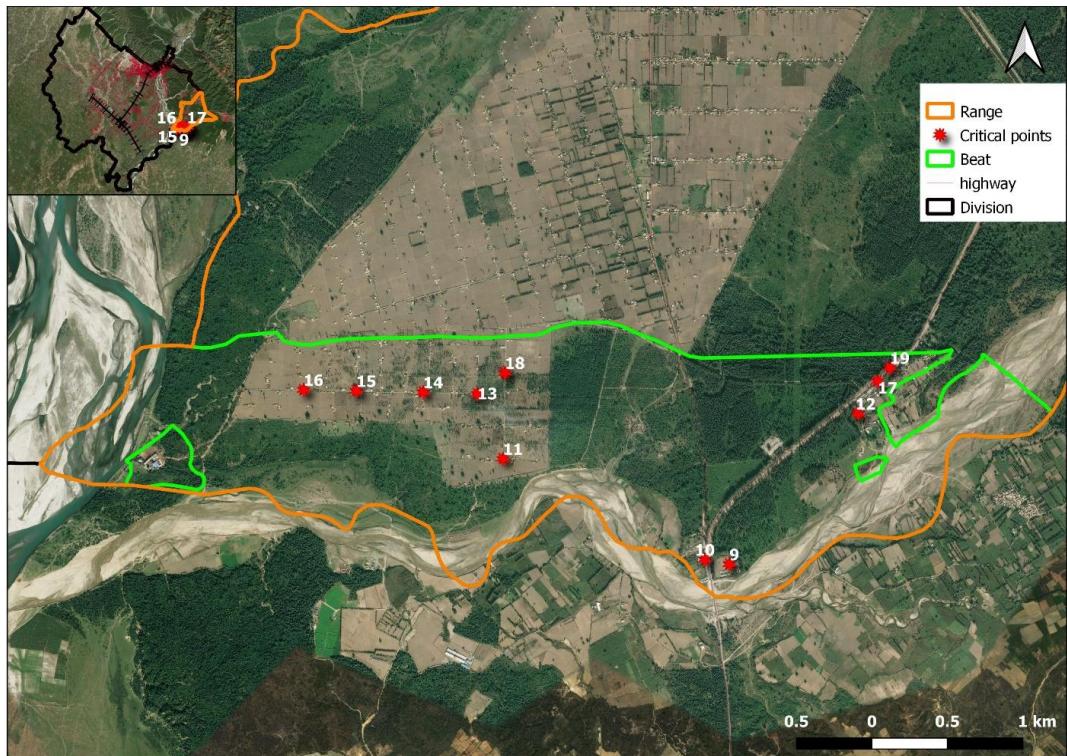


Figure 16: Chidiyapur beat of Chidiyapur range

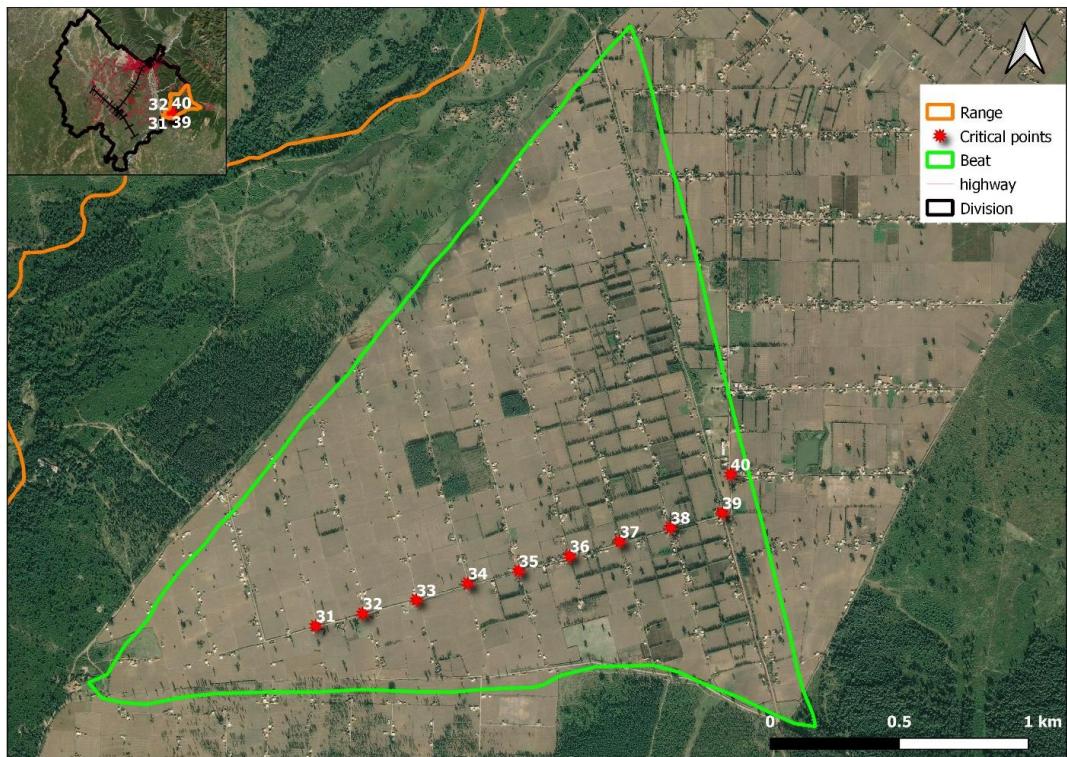


Figure 17: Gujjar rehabilitation area of Chidiyapur range

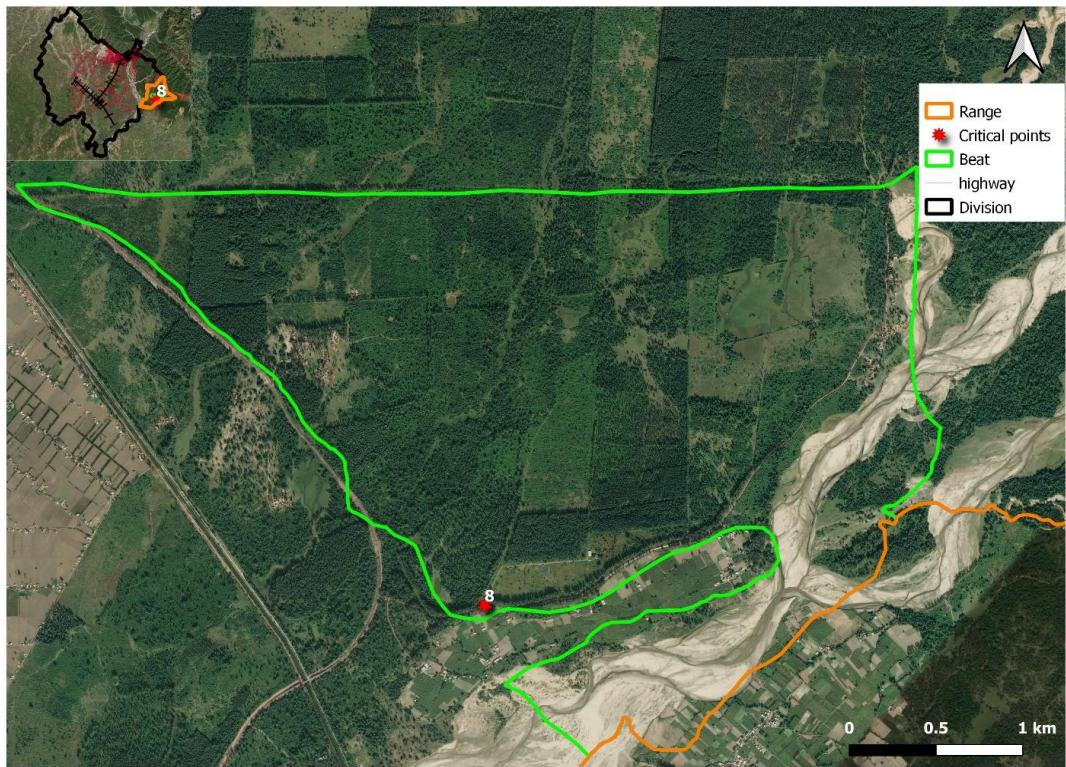


Figure 18: Boxawali beat of Chidiyapur range

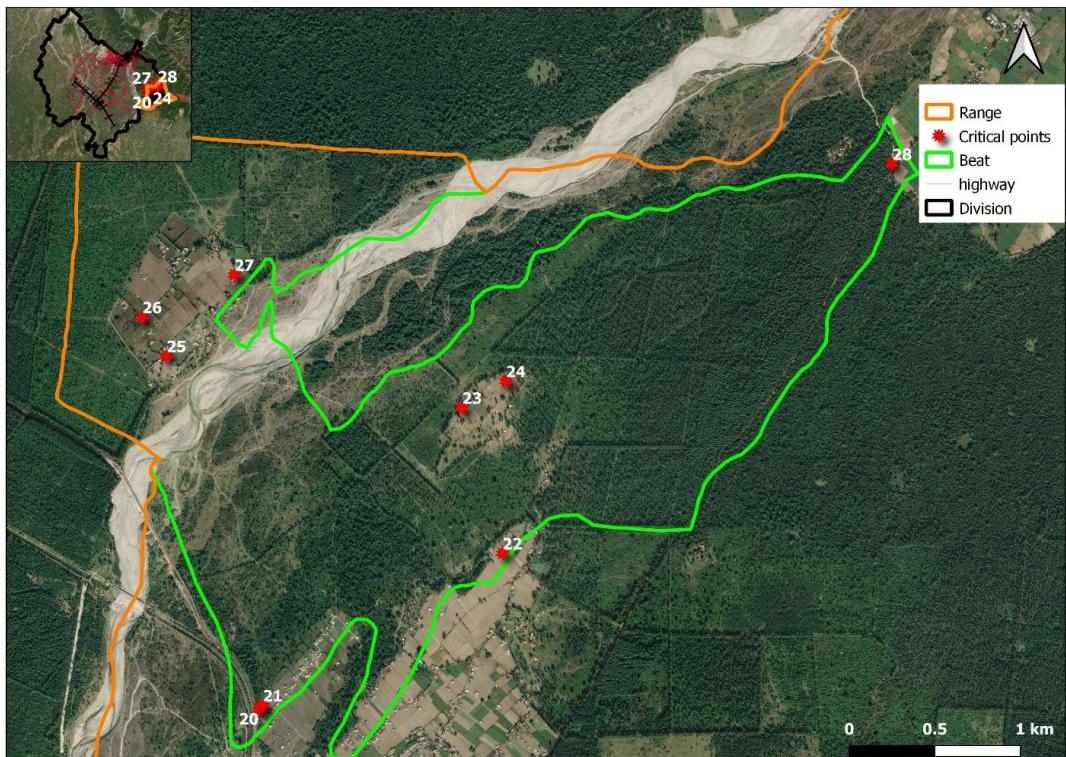


Figure 19: Gaindikhata 1 beat of Chidiyapur range

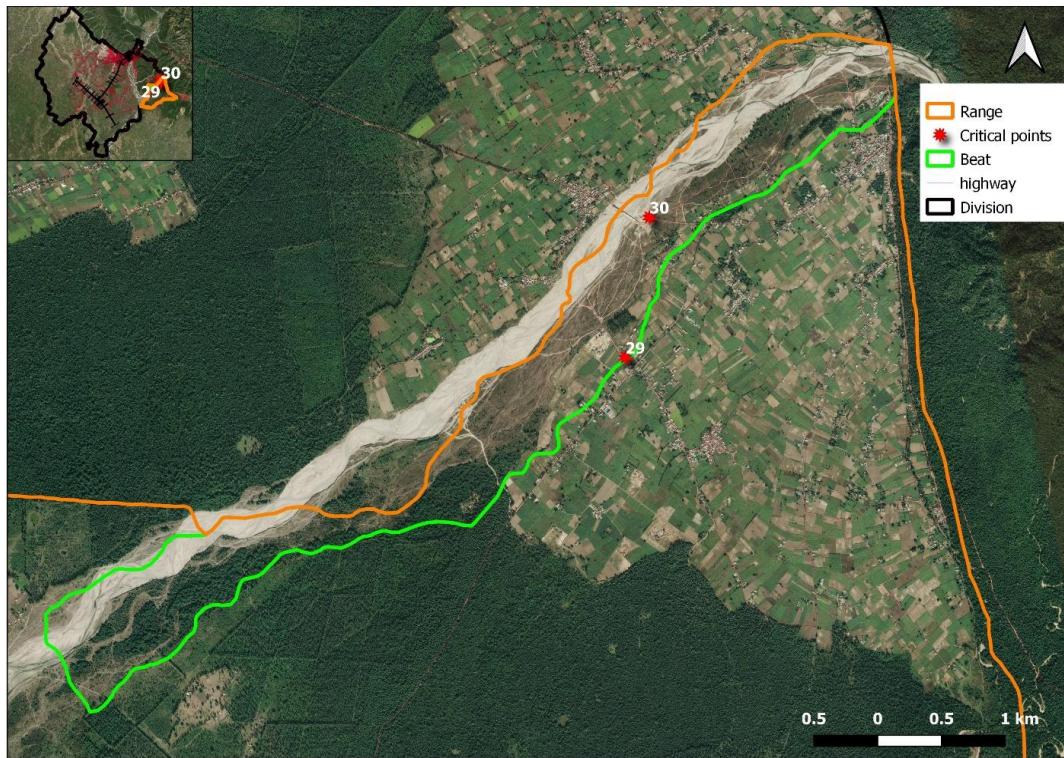


Figure 20: Gaindikhata 2 beat of Chidiyapur range

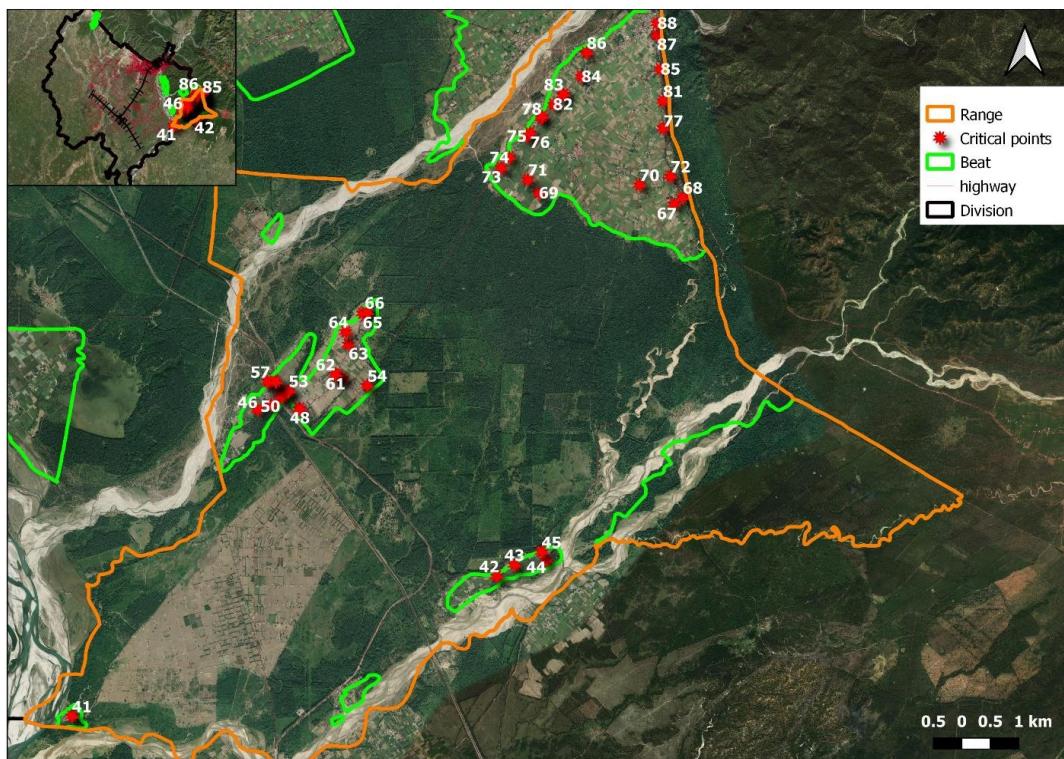


Figure 21: Non-forested areas of Chidiyapur range

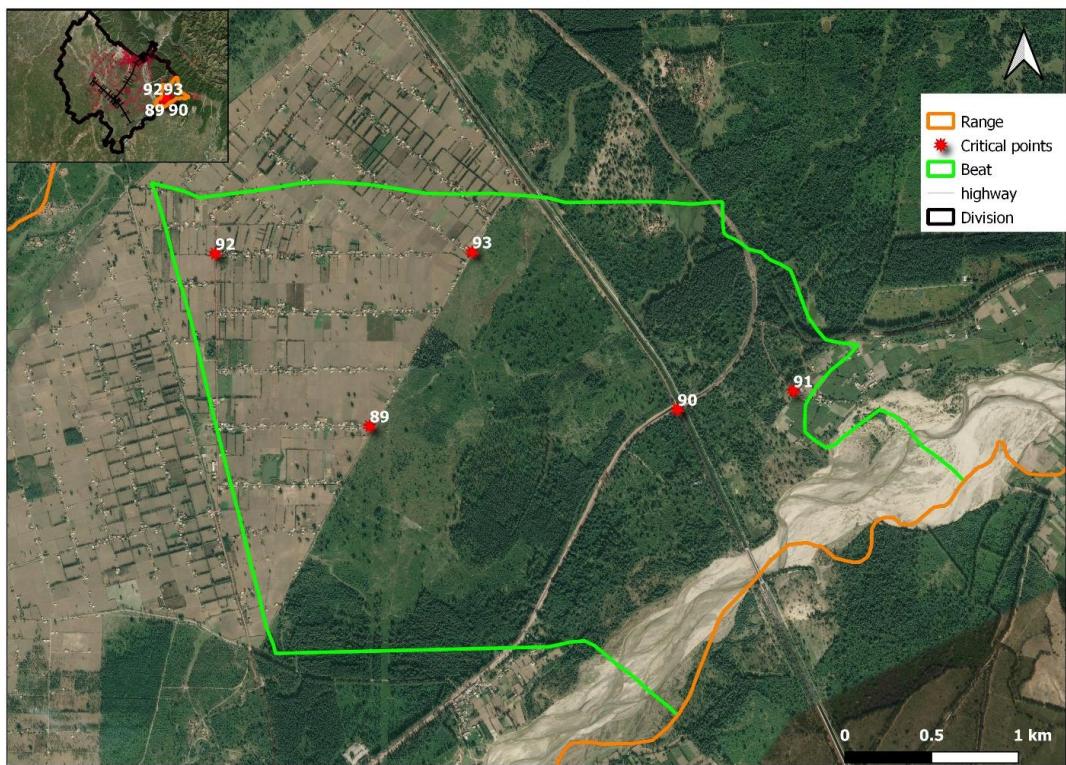


Figure 22: Sherpur beat of Chidiyapur range

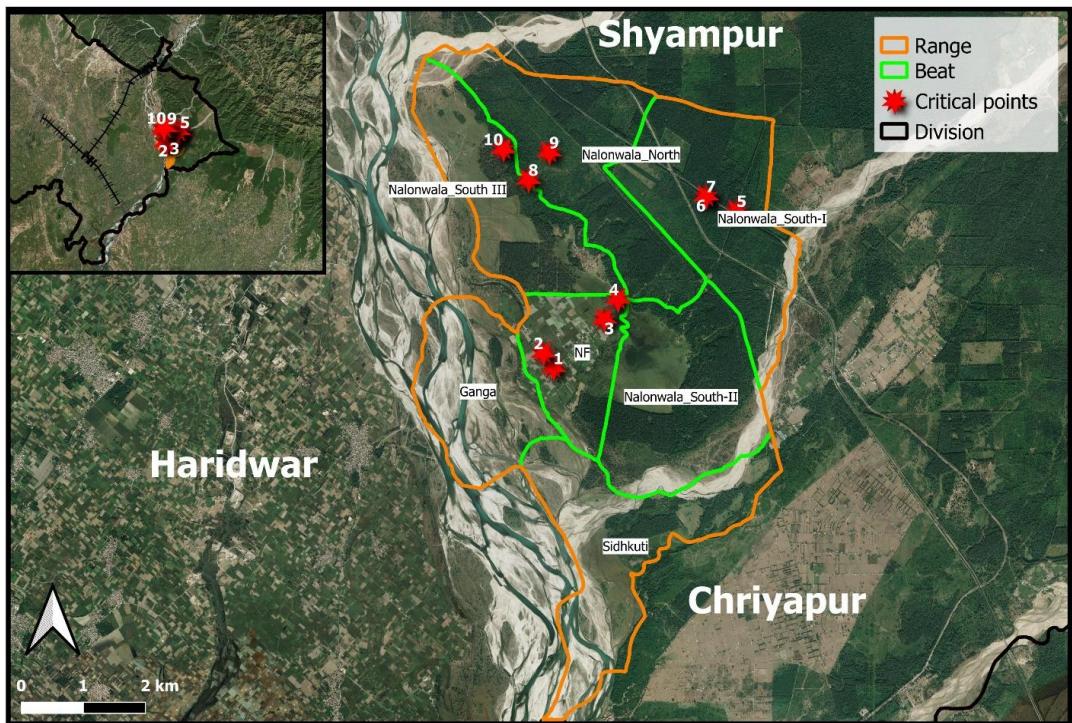


Figure 23: Critical points in Rasiabad range of Haridwar Forest Division



Figure 24: Critical points in Boghpur North beat of Laksar range

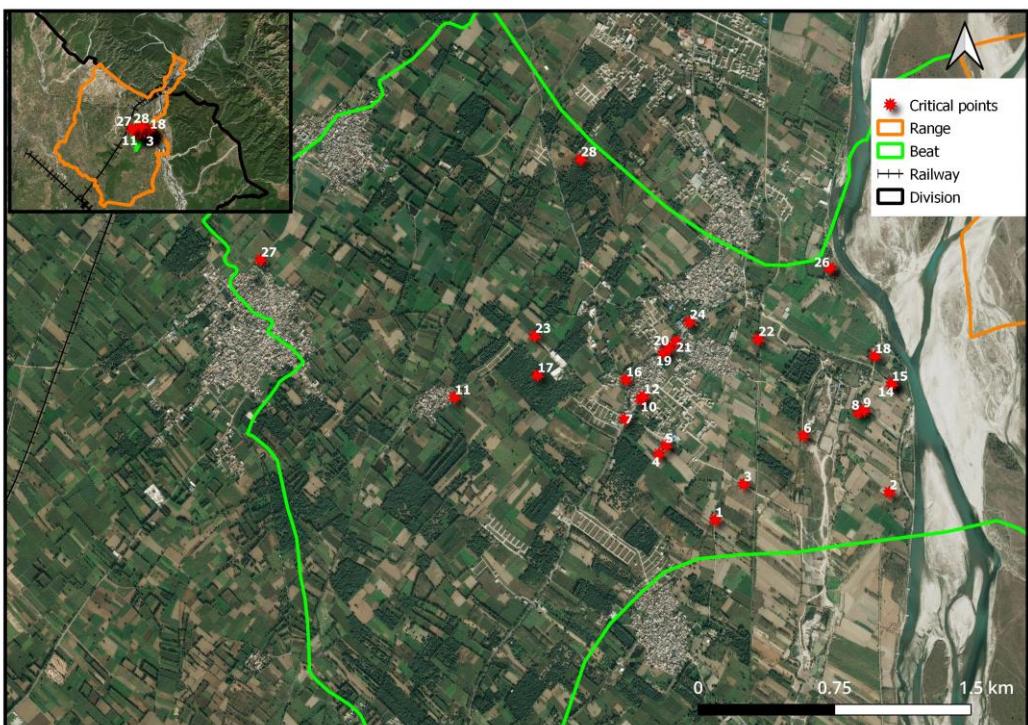


Figure 25: Critical points in Bishanpur north beat of Haridwar range



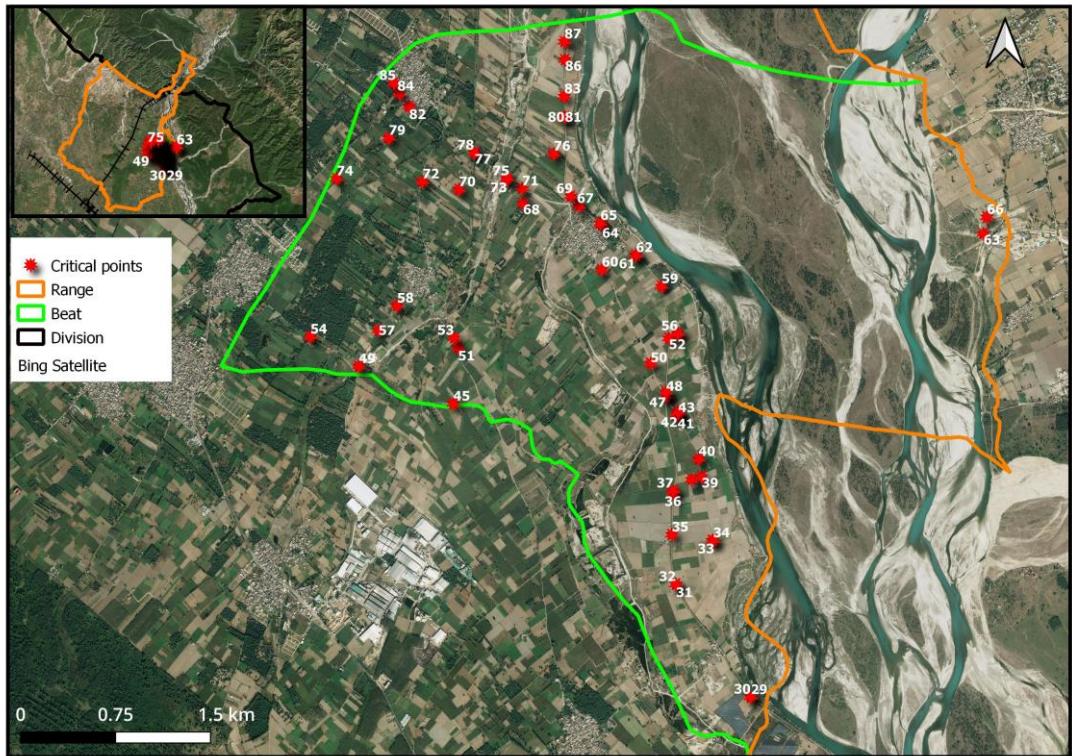


Figure 26: Critical points in Bishanpur south beat of Haridwar range

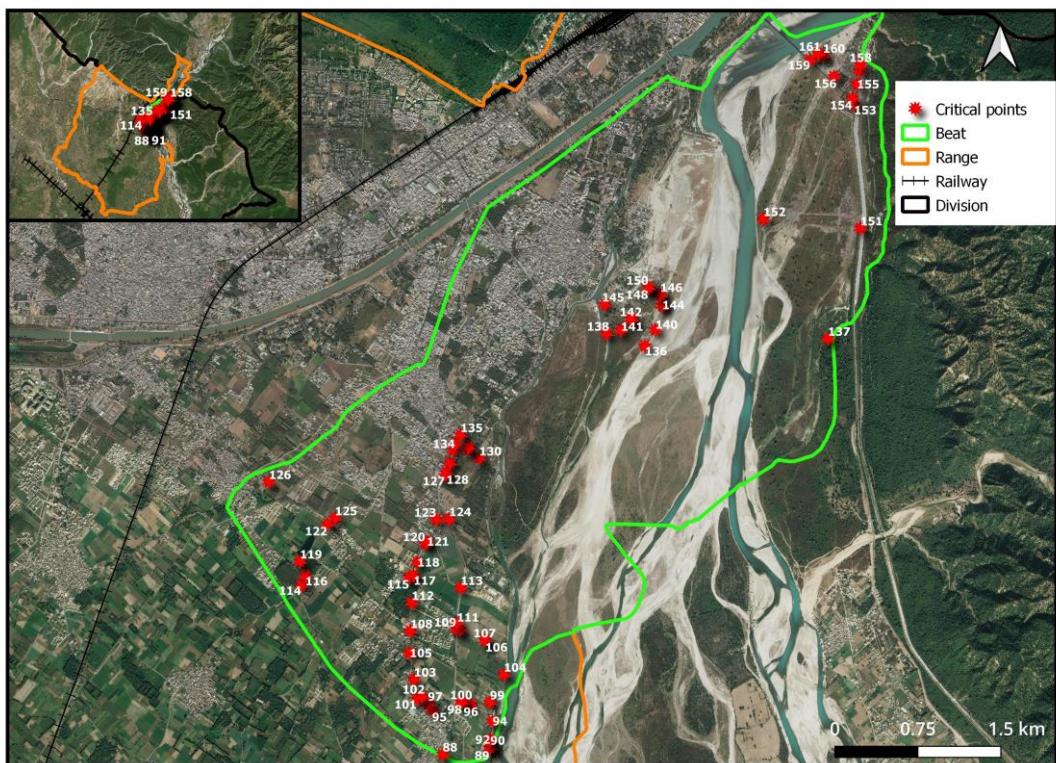


Figure 27: Critical points in Devpur athmal beat of Haridwar range

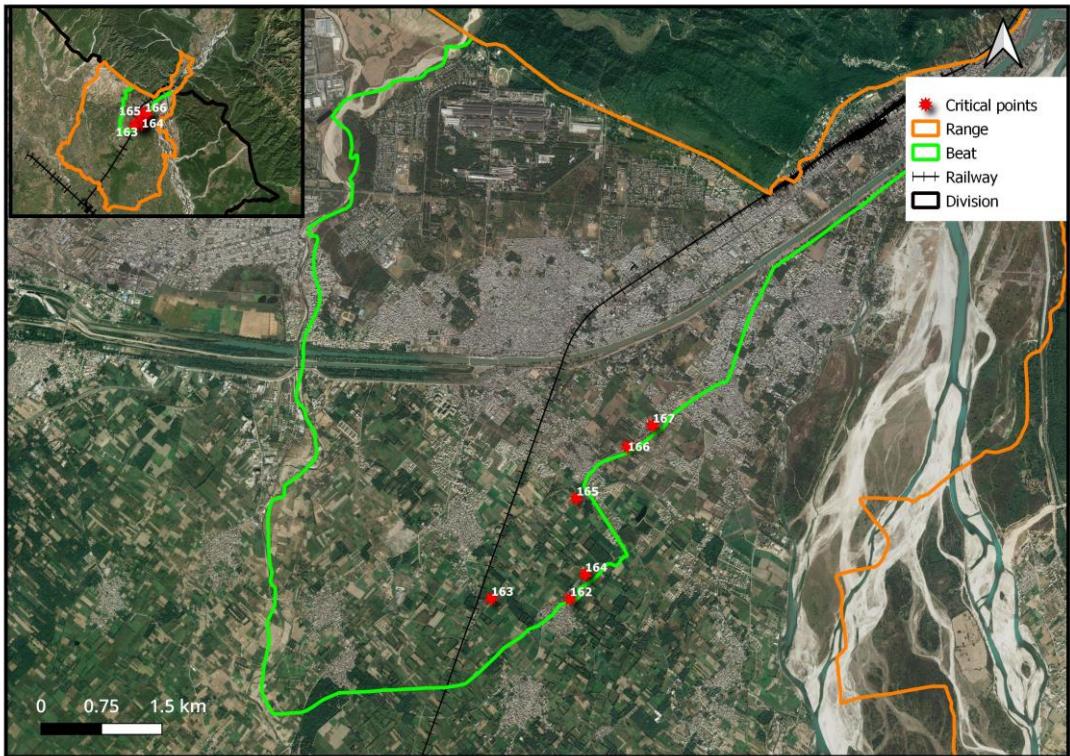


Figure 28: Critical points in Haridwar beat of Haridwar range

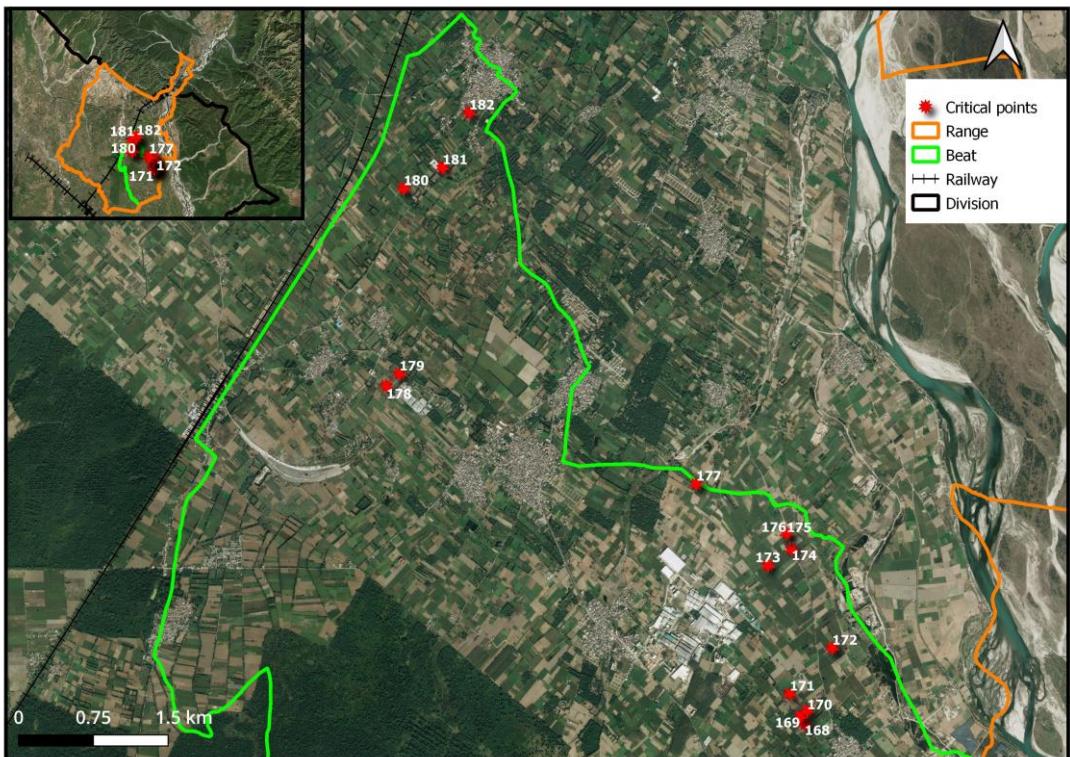


Figure 29: Critical points in Pathri east beat of Haridwar range



Figure 30: Critical points in Pathri west beat of Haridwar range

List of critical points in Shyampur range of Haridwar Forest Division

S. No.	Range	Beat	Lat	Long	Critical points
1	Shyampur	Anjani	29.89358	78.17044	3
2	Shyampur	Anjani	29.90055	78.16442	
3	Shyampur	Anjani	29.90055	78.16442	
4	Shyampur	Mithiberi	29.83546	78.27715	2
5	Shyampur	Mithiberi	29.83546	78.27715	
6	Shyampur	NF	29.83735	78.27871	69
7	Shyampur	NF	29.83927	78.28207	
8	Shyampur	NF	29.84205	78.28621	
9	Shyampur	NF	29.84327	78.28538	
10	Shyampur	NF	29.84651	78.18277	
11	Shyampur	NF	29.84846	78.29427	
12	Shyampur	NF	29.84859	78.24583	
13	Shyampur	NF	29.84966	78.29061	
14	Shyampur	NF	29.84968	78.1855	
15	Shyampur	NF	29.8497	78.18551	
16	Shyampur	NF	29.8497	78.2496	
17	Shyampur	NF	29.84977	78.23666	
18	Shyampur	NF	29.85054	78.25274	
19	Shyampur	NF	29.85151	78.25928	
20	Shyampur	NF	29.85214	78.18129	
21	Shyampur	NF	29.85278	78.28366	
22	Shyampur	NF	29.85392	78.28654	
23	Shyampur	NF	29.85641	78.18283	
24	Shyampur	NF	29.85788	78.24671	
25	Shyampur	NF	29.85968	78.29062	
26	Shyampur	NF	29.86089	78.28552	
27	Shyampur	NF	29.861	78.25317	
28	Shyampur	NF	29.86192	78.18162	
29	Shyampur	NF	29.86204	78.18455	
30	Shyampur	NF	29.86277	78.18383	
31	Shyampur	NF	29.86298	78.18136	
32	Shyampur	NF	29.863	78.18135	
33	Shyampur	NF	29.86531	78.1809	
34	Shyampur	NF	29.86554	78.17365	
35	Shyampur	NF	29.86601	78.18086	
36	Shyampur	NF	29.8666	78.18057	
37	Shyampur	NF	29.86683	78.18415	
38	Shyampur	NF	29.86689	78.29034	
39	Shyampur	NF	29.86724	78.18573	
40	Shyampur	NF	29.86792	78.18447	
41	Shyampur	NF	29.8688	78.17313	
42	Shyampur	NF	29.87036	78.172	
43	Shyampur	NF	29.87045	78.29567	
44	Shyampur	NF	29.87115	78.17528	
45	Shyampur	NF	29.87129	78.18643	



S. No.	Range	Beat	Lat	Long	Critical points
46	Shyampur	NF	29.87171	78.17935	
47	Shyampur	NF	29.8718	78.1719	
48	Shyampur	NF	29.87206	78.30043	
49	Shyampur	NF	29.87603	78.17812	
50	Shyampur	NF	29.8763	78.17454	
51	Shyampur	NF	29.87723	78.17693	
52	Shyampur	NF	29.87873	78.1774	
53	Shyampur	NF	29.87933	78.18289	
54	Shyampur	NF	29.88022	78.18368	
55	Shyampur	NF	29.88095	78.17674	
56	Shyampur	NF	29.88097	78.17671	
57	Shyampur	NF	29.88156	78.18402	
58	Shyampur	NF	29.88328	78.18372	
59	Shyampur	NF	29.88356	78.18501	
60	Shyampur	NF	29.88483	78.1757	
61	Shyampur	NF	29.88514	78.17603	
62	Shyampur	NF	29.88537	78.18448	
63	Shyampur	NF	29.88557	78.1755	
64	Shyampur	NF	29.88717	78.17517	
65	Shyampur	NF	29.88796	78.18018	
66	Shyampur	NF	29.88924	78.17453	
67	Shyampur	NF	29.8896	78.17332	
68	Shyampur	NF	29.89053	78.17387	
69	Shyampur	NF	29.8911	78.17961	
70	Shyampur	NF	29.89398	78.17224	
71	Shyampur	NF	29.89409	78.17815	
72	Shyampur	NF	29.89533	78.17276	
73	Shyampur	NF	29.89701	78.17249	
74	Shyampur	NF	29.89817	78.17536	
75	Shyampur	Peeli	29.86061	78.24435	1
76	Shyampur	Sajanpur	29.84516	78.18505	4
77	Shyampur	Sajanpur	29.84516	78.18505	
78	Shyampur	Sajanpur	29.84549	78.18427	
79	Shyampur	Sajanpur	29.84552	78.18443	



List of critical points in Chidiyapur range of Haridwar Forest Division

S. No.	Range	Beat	Lat	Long	Critical points
1	Chidiyapur	Amsot	29.75686	78.22438	7
2	Chidiyapur	Amsot	29.77278	78.24608	
3	Chidiyapur	Amsot	29.77726	78.26967	
4	Chidiyapur	Amsot	29.77832	78.25092	
5	Chidiyapur	Amsot	29.7822	78.25449	
6	Chidiyapur	Amsot	29.78223	78.25445	
7	Chidiyapur	Amsot	29.80837	78.24197	
8	Chidiyapur	Boxawali	29.76542	78.28284	1
9	Chidiyapur	Chidiyapur	29.73665	78.2499	11
10	Chidiyapur	Chidiyapur	29.73692	78.24823	
11	Chidiyapur	Chidiyapur	29.74287	78.2344	
12	Chidiyapur	Chidiyapur	29.74554	78.25872	
13	Chidiyapur	Chidiyapur	29.7467	78.23265	
14	Chidiyapur	Chidiyapur	29.7468	78.22894	
15	Chidiyapur	Chidiyapur	29.74688	78.22436	
16	Chidiyapur	Chidiyapur	29.74694	78.22075	
17	Chidiyapur	Chidiyapur	29.74745	78.26005	
18	Chidiyapur	Chidiyapur	29.74794	78.23454	
19	Chidiyapur	Chidiyapur	29.74824	78.26089	
20	Chidiyapur	Gandikhata-I	29.7981	78.24846	9
21	Chidiyapur	Gandikhata-I	29.79833	78.24871	
22	Chidiyapur	Gandikhata-I	29.80625	78.2632	
23	Chidiyapur	Gandikhata-I	29.81383	78.26076	
24	Chidiyapur	Gandikhata-I	29.81522	78.26341	
25	Chidiyapur	Gandikhata-I	29.81653	78.24288	
26	Chidiyapur	Gandikhata-I	29.81855	78.24141	
27	Chidiyapur	Gandikhata-I	29.82076	78.24699	
28	Chidiyapur	Gandikhata-I	29.82653	78.28677	
29	Chidiyapur	Gandikhata-II	29.83741	78.29621	2
30	Chidiyapur	Gandikhata-II	29.8472	78.29816	
31	Chidiyapur	Gujar rehabilitation	29.75229	78.228	10
32	Chidiyapur	Gujar rehabilitation	29.75272	78.22988	
33	Chidiyapur	Gujar rehabilitation	29.75318	78.23203	
34	Chidiyapur	Gujar rehabilitation	29.75376	78.23409	
35	Chidiyapur	Gujar rehabilitation	29.75419	78.23613	
36	Chidiyapur	Gujar rehabilitation	29.7547	78.23817	
37	Chidiyapur	Gujar rehabilitation	29.7552	78.24017	
38	Chidiyapur	Gujar rehabilitation	29.75568	78.2422	
39	Chidiyapur	Gujar rehabilitation	29.75619	78.24427	
40	Chidiyapur	Gujar rehabilitation	29.75752	78.24461	
41	Chidiyapur	NF	29.74297	78.21134	48
42	Chidiyapur	NF	29.76489	78.28849	
43	Chidiyapur	NF	29.76667	78.29173	
44	Chidiyapur	NF	29.76739	78.29747	
45	Chidiyapur	NF	29.76869	78.29665	
46	Chidiyapur	NF	29.79098	78.24506	



S. No.	Range	Beat	Lat	Long	Critical points
47	Chidiyapur	NF	29.79105	78.25258	
48	Chidiyapur	NF	29.79113	78.25275	
49	Chidiyapur	NF	29.79173	78.24754	
50	Chidiyapur	NF	29.79295	78.24919	
51	Chidiyapur	NF	29.7931	78.24961	
52	Chidiyapur	NF	29.79374	78.25043	
53	Chidiyapur	NF	29.79391	78.25071	
54	Chidiyapur	NF	29.79474	78.265	
55	Chidiyapur	NF	29.79493	78.24831	
56	Chidiyapur	NF	29.79529	78.24733	
57	Chidiyapur	NF	29.79535	78.2469	
58	Chidiyapur	NF	29.79535	78.24837	
59	Chidiyapur	NF	29.79584	78.26048	
60	Chidiyapur	NF	29.79633	78.25956	
61	Chidiyapur	NF	29.79647	78.25922	
62	Chidiyapur	NF	29.79648	78.25919	
63	Chidiyapur	NF	29.80117	78.26158	
64	Chidiyapur	NF	29.80314	78.26108	
65	Chidiyapur	NF	29.80604	78.26414	
66	Chidiyapur	NF	29.80617	78.26496	
67	Chidiyapur	NF	29.82312	78.32074	
68	Chidiyapur	NF	29.82416	78.3223	
69	Chidiyapur	NF	29.82488	78.29614	
70	Chidiyapur	NF	29.82614	78.31447	
71	Chidiyapur	NF	29.82696	78.29415	
72	Chidiyapur	NF	29.82747	78.32008	
73	Chidiyapur	NF	29.82881	78.28932	
74	Chidiyapur	NF	29.83042	78.2908	
75	Chidiyapur	NF	29.83374	78.29396	
76	Chidiyapur	NF	29.83426	78.29456	
77	Chidiyapur	NF	29.835	78.31877	
78	Chidiyapur	NF	29.83653	78.29666	
79	Chidiyapur	NF	29.83687	78.29677	
80	Chidiyapur	NF	29.8387	78.29889	
81	Chidiyapur	NF	29.83928	78.31874	
82	Chidiyapur	NF	29.8402	78.30051	
83	Chidiyapur	NF	29.84031	78.30067	
84	Chidiyapur	NF	29.84308	78.30389	
85	Chidiyapur	NF	29.84425	78.31826	
86	Chidiyapur	NF	29.84684	78.30485	
87	Chidiyapur	NF	29.84957	78.31763	
88	Chidiyapur	NF	29.85143	78.31766	
89	Chidiyapur	Sherpur	29.76048	78.25363	5
90	Chidiyapur	Sherpur	29.76134	78.27198	
91	Chidiyapur	Sherpur	29.76229	78.27888	
92	Chidiyapur	Sherpur	29.76934	78.24443	
93	Chidiyapur	Sherpur	29.76942	78.25974	



List of critical points in Rasiabad range of Haridwar Forest Division

S. No.	Range	Beat	Lat	Long	Critical points
1	Jhilmil_Jheel	NF	29.79306	78.20113	4
2	Jhilmil_Jheel	NF	29.7952	78.19943	
3	Jhilmil_Jheel	NF	29.80004	78.20959	
4	Jhilmil_Jheel	NF	29.80291	78.21185	
5	Jhilmil_Jheel	Nalonwala South 1	29.81561	78.23162	3
6	Jhilmil_Jheel	Nalonwala South 1	29.81767	78.22653	
7	Jhilmil_Jheel	Nalonwala South 1	29.81772	78.22654	
8	Jhilmil_Jheel	Nalonwala North	29.82007	78.19695	2
9	Jhilmil_Jheel	Nalonwala North	29.82401	78.20042	
10	Jhilmil_Jheel	Nalonwala South 3	29.82446	78.19277	1

List of critical points in Laksar range of Haridwar Forest Division

S. No.	Range	Beat	Lat	Long	Critical points
1	Laksar	Bhogpur North	29.80848	78.17966	8
2	Laksar	Bhogpur North	29.8089	78.16796	
3	Laksar	Bhogpur North	29.8097	78.1636	
4	Laksar	Bhogpur North	29.81262	78.16496	
5	Laksar	Bhogpur North	29.81368	78.16253	
6	Laksar	Bhogpur North	29.81432	78.16301	
7	Laksar	Bhogpur North	29.81574	78.16375	
8	Laksar	Bhogpur North	29.81794	78.16388	

List of critical points in Haridwar range of Haridwar Forest Division

S. No.	Range	Beat	Lat	Long	Critical points
1	Haridwar	Bishanpur North	29.87285	78.13297	28
2	Haridwar	Bishanpur North	29.8742	78.14287	
3	Haridwar	Bishanpur North	29.87461	78.13459	
4	Haridwar	Bishanpur North	29.87608	78.12977	
5	Haridwar	Bishanpur North	29.8765	78.13017	
6	Haridwar	Bishanpur North	29.877	78.13799	
7	Haridwar	Bishanpur North	29.87782	78.12783	
8	Haridwar	Bishanpur North	29.87813	78.14112	
9	Haridwar	Bishanpur North	29.87825	78.14144	
10	Haridwar	Bishanpur North	29.87879	78.12873	
11	Haridwar	Bishanpur North	29.87888	78.11814	
12	Haridwar	Bishanpur North	29.87892	78.12888	
13	Haridwar	Bishanpur North	29.87953	78.14303	
14	Haridwar	Bishanpur North	29.87953	78.14303	
15	Haridwar	Bishanpur North	29.87955	78.14301	
16	Haridwar	Bishanpur North	29.87976	78.12789	
17	Haridwar	Bishanpur North	29.87997	78.12285	



S. No.	Range	Beat	Lat	Long	Critical points
18	Haridwar	Bishanpur North	29.88091	78.14205	
19	Haridwar	Bishanpur North	29.88106	78.13004	
20	Haridwar	Bishanpur North	29.8813	78.13034	
21	Haridwar	Bishanpur North	29.88163	78.13072	
22	Haridwar	Bishanpur North	29.88175	78.13541	
23	Haridwar	Bishanpur North	29.88191	78.1227	
24	Haridwar	Bishanpur North	29.88259	78.13151	
25	Haridwar	Bishanpur North	29.88525	78.13949	
26	Haridwar	Bishanpur North	29.88525	78.13949	
27	Haridwar	Bishanpur North	29.88566	78.1071	
28	Haridwar	Bishanpur North	29.8906	78.12531	
29	Haridwar	Bishanpur South	29.82429	78.15756	
30	Haridwar	Bishanpur South	29.82432	78.15755	
31	Haridwar	Bishanpur South	29.83224	78.15144	
32	Haridwar	Bishanpur South	29.83225	78.15143	
33	Haridwar	Bishanpur South	29.83532	78.15441	
34	Haridwar	Bishanpur South	29.83533	78.15448	
35	Haridwar	Bishanpur South	29.83574	78.1511	
36	Haridwar	Bishanpur South	29.83865	78.1512	
37	Haridwar	Bishanpur South	29.83883	78.15123	
38	Haridwar	Bishanpur South	29.83962	78.15272	
39	Haridwar	Bishanpur South	29.83981	78.15354	
40	Haridwar	Bishanpur South	29.84106	78.15329	
41	Haridwar	Bishanpur South	29.84412	78.15157	
42	Haridwar	Bishanpur South	29.84422	78.15156	
43	Haridwar	Bishanpur South	29.84428	78.15163	
44	Haridwar	Bishanpur South	29.84438	78.15161	
45	Haridwar	Bishanpur South	29.84495	78.13324	
46	Haridwar	Bishanpur South	29.84548	78.15063	
47	Haridwar	Bishanpur South	29.84548	78.15063	
48	Haridwar	Bishanpur South	29.84578	78.15063	
49	Haridwar	Bishanpur South	29.84759	78.12552	
50	Haridwar	Bishanpur South	29.8478	78.14937	
51	Haridwar	Bishanpur South	29.8489	78.13363	
52	Haridwar	Bishanpur South	29.84956	78.15086	
53	Haridwar	Bishanpur South	29.84959	78.1333	
54	Haridwar	Bishanpur South	29.84967	78.12156	
55	Haridwar	Bishanpur South	29.8499	78.1516	
56	Haridwar	Bishanpur South	29.8499	78.1516	
57	Haridwar	Bishanpur South	29.85013	78.12712	
58	Haridwar	Bishanpur South	29.85185	78.12864	
59	Haridwar	Bishanpur South	29.85322	78.15026	
60	Haridwar	Bishanpur South	29.85439	78.14537	
61	Haridwar	Bishanpur South	29.85538	78.14814	
62	Haridwar	Bishanpur South	29.85541	78.14817	
63	Haridwar	Bishanpur South	29.85692	78.17658	
64	Haridwar	Bishanpur South	29.85754	78.1454	

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S. No.	Range	Beat	Lat	Long	Critical points
65	Haridwar	Bishanpur South	29.85767	78.14526	
66	Haridwar	Bishanpur South	29.85809	78.17686	
67	Haridwar	Bishanpur South	29.85887	78.14352	
68	Haridwar	Bishanpur South	29.85905	78.13894	
69	Haridwar	Bishanpur South	29.85956	78.14285	
70	Haridwar	Bishanpur South	29.86004	78.1337	
71	Haridwar	Bishanpur South	29.8601	78.13886	
72	Haridwar	Bishanpur South	29.86059	78.13072	
73	Haridwar	Bishanpur South	29.86074	78.13764	
74	Haridwar	Bishanpur South	29.8608	78.1237	
75	Haridwar	Bishanpur South	29.86081	78.13765	
76	Haridwar	Bishanpur South	29.86255	78.14145	
77	Haridwar	Bishanpur South	29.86261	78.13498	
78	Haridwar	Bishanpur South	29.86262	78.13494	
79	Haridwar	Bishanpur South	29.86366	78.12797	
80	Haridwar	Bishanpur South	29.86514	78.14234	
81	Haridwar	Bishanpur South	29.86514	78.14236	
82	Haridwar	Bishanpur South	29.86589	78.12963	
83	Haridwar	Bishanpur South	29.86658	78.14231	
84	Haridwar	Bishanpur South	29.86677	78.12884	
85	Haridwar	Bishanpur South	29.86752	78.12838	
86	Haridwar	Bishanpur South	29.86916	78.14237	
87	Haridwar	Bishanpur South	29.87044	78.14233	
88	Haridwar	Devpura Athmal	29.88604	78.1347	
89	Haridwar	Devpura Athmal	29.88651	78.13909	
90	Haridwar	Devpura Athmal	29.88658	78.13916	
91	Haridwar	Devpura Athmal	29.88658	78.13916	
92	Haridwar	Devpura Athmal	29.88722	78.13915	
93	Haridwar	Devpura Athmal	29.88722	78.13915	
94	Haridwar	Devpura Athmal	29.88871	78.13937	
95	Haridwar	Devpura Athmal	29.8896	78.13371	
96	Haridwar	Devpura Athmal	29.89003	78.13735	
97	Haridwar	Devpura Athmal	29.89012	78.13331	
98	Haridwar	Devpura Athmal	29.89021	78.13652	
99	Haridwar	Devpura Athmal	29.89022	78.13912	
100	Haridwar	Devpura Athmal	29.89024	78.13644	
101	Haridwar	Devpura Athmal	29.89047	78.13228	
102	Haridwar	Devpura Athmal	29.89069	78.13277	
103	Haridwar	Devpura Athmal	29.89207	78.13202	
104	Haridwar	Devpura Athmal	29.89246	78.14044	
105	Haridwar	Devpura Athmal	29.89419	78.13162	
106	Haridwar	Devpura Athmal	29.89521	78.13869	
107	Haridwar	Devpura Athmal	29.89522	78.13864	
108	Haridwar	Devpura Athmal	29.89596	78.13168	
109	Haridwar	Devpura Athmal	29.89609	78.13599	
110	Haridwar	Devpura Athmal	29.89609	78.13634	
111	Haridwar	Devpura Athmal	29.89663	78.13603	

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S. No.	Range	Beat	Lat	Long	Critical points
112	Haridwar	Devpura Athmal	29.89823	78.1318	
113	Haridwar	Devpura Athmal	29.89944	78.13639	
114	Haridwar	Devpura Athmal	29.89963	78.12147	
115	Haridwar	Devpura Athmal	29.90028	78.13158	
116	Haridwar	Devpura Athmal	29.90039	78.12185	
117	Haridwar	Devpura Athmal	29.90044	78.13198	
118	Haridwar	Devpura Athmal	29.90148	78.13233	
119	Haridwar	Devpura Athmal	29.90156	78.12134	
120	Haridwar	Devpura Athmal	29.90296	78.13307	
121	Haridwar	Devpura Athmal	29.90316	78.13323	
122	Haridwar	Devpura Athmal	29.90455	78.12391	
123	Haridwar	Devpura Athmal	29.90492	78.13412	
124	Haridwar	Devpura Athmal	29.90497	78.1353	
125	Haridwar	Devpura Athmal	29.90504	78.12462	
126	Haridwar	Devpura Athmal	29.90796	78.11844	
127	Haridwar	Devpura Athmal	29.90844	78.13492	
128	Haridwar	Devpura Athmal	29.9087	78.13505	
129	Haridwar	Devpura Athmal	29.90947	78.13538	
130	Haridwar	Devpura Athmal	29.90985	78.13813	
131	Haridwar	Devpura Athmal	29.9105	78.13569	
132	Haridwar	Devpura Athmal	29.91056	78.13709	
133	Haridwar	Devpura Athmal	29.91075	78.13711	
134	Haridwar	Devpura Athmal	29.91102	78.13587	
135	Haridwar	Devpura Athmal	29.91173	78.13637	
136	Haridwar	Devpura Athmal	29.91889	78.15364	
137	Haridwar	Devpura Athmal	29.91948	78.17077	
138	Haridwar	Devpura Athmal	29.91989	78.15003	
139	Haridwar	Devpura Athmal	29.92016	78.15137	
140	Haridwar	Devpura Athmal	29.92018	78.15462	
141	Haridwar	Devpura Athmal	29.92101	78.15244	
142	Haridwar	Devpura Athmal	29.92106	78.15232	
143	Haridwar	Devpura Athmal	29.92212	78.15525	
144	Haridwar	Devpura Athmal	29.92218	78.15526	
145	Haridwar	Devpura Athmal	29.92223	78.14988	
146	Haridwar	Devpura Athmal	29.92302	78.15507	
147	Haridwar	Devpura Athmal	29.92302	78.15509	
148	Haridwar	Devpura Athmal	29.92358	78.15395	
149	Haridwar	Devpura Athmal	29.92358	78.15395	
150	Haridwar	Devpura Athmal	29.92359	78.15398	
151	Haridwar	Devpura Athmal	29.92836	78.1738	
152	Haridwar	Devpura Athmal	29.92911	78.16473	
153	Haridwar	Devpura Athmal	29.93828	78.17321	
154	Haridwar	Devpura Athmal	29.93882	78.17306	
155	Haridwar	Devpura Athmal	29.93994	78.17348	
156	Haridwar	Devpura Athmal	29.94055	78.17132	
157	Haridwar	Devpura Athmal	29.94101	78.17371	
158	Haridwar	Devpura Athmal	29.94151	78.17382	



S. No.	Range	Beat	Lat	Long	Critical points
159	Haridwar	Devpura Athmal	29.94189	78.16911	
160	Haridwar	Devpura Athmal	29.94224	78.17029	
161	Haridwar	Devpura Athmal	29.9424	78.16985	
162	Haridwar	Haridwar	29.89341	78.11273	
163	Haridwar	Haridwar	29.89345	78.10263	
164	Haridwar	Haridwar	29.89612	78.11468	
165	Haridwar	Haridwar	29.90452	78.11356	
166	Haridwar	Haridwar	29.91022	78.12014	
167	Haridwar	Haridwar	29.91258	78.12335	
168	Haridwar	Pathri East	29.82416	78.13942	
169	Haridwar	Pathri East	29.82485	78.13895	
170	Haridwar	Pathri East	29.82539	78.13968	
171	Haridwar	Pathri East	29.82688	78.13787	
172	Haridwar	Pathri East	29.83098	78.14228	
173	Haridwar	Pathri East	29.83835	78.1356	
174	Haridwar	Pathri East	29.83978	78.13807	
175	Haridwar	Pathri East	29.84121	78.13754	
176	Haridwar	Pathri East	29.84123	78.13753	
177	Haridwar	Pathri East	29.84563	78.12816	
178	Haridwar	Pathri East	29.85438	78.096	
179	Haridwar	Pathri East	29.85546	78.09735	
180	Haridwar	Pathri East	29.87201	78.09779	
181	Haridwar	Pathri East	29.87387	78.10183	
182	Haridwar	Pathri East	29.87876	78.1046	
183	Haridwar	Pathri West	29.88032	78.09671	1



Critical points falling directly within the ranging areas of collared and non-collared bulls that cross the Ganges to raid crops in Haridwar and Laksar range

S. No.	Lat	Long	Range	Division
1	29.78223	78.25445	Chiriyapur	Haridwar
2	29.7822	78.25449	Chiriyapur	Haridwar
3	29.76134	78.27198	Chiriyapur	Haridwar
4	29.76229	78.27888	Chiriyapur	Haridwar
5	29.76542	78.28284	Chiriyapur	Haridwar
6	29.76489	78.28849	Chiriyapur	Haridwar
7	29.79474	78.265	Chiriyapur	Haridwar
8	29.91948	78.17077	Haridwar	Haridwar
9	29.89609	78.13634	Haridwar	Haridwar
10	29.88651	78.13909	Haridwar	Haridwar
11	29.88091	78.14205	Haridwar	Haridwar
12	29.87955	78.14301	Haridwar	Haridwar
13	29.877	78.13799	Haridwar	Haridwar
14	29.86262	78.13494	Haridwar	Haridwar
15	29.86004	78.1337	Haridwar	Haridwar
16	29.8489	78.13363	Haridwar	Haridwar
17	29.84121	78.13754	Haridwar	Haridwar
18	29.83978	78.13807	Haridwar	Haridwar
19	29.83835	78.1356	Haridwar	Haridwar
20	29.8499	78.1516	Haridwar	Haridwar
21	29.84548	78.15063	Haridwar	Haridwar
22	29.9087	78.13505	Haridwar	Haridwar
23	29.90844	78.13492	Haridwar	Haridwar
24	29.90497	78.1353	Haridwar	Haridwar
25	29.89944	78.13639	Haridwar	Haridwar
26	29.89609	78.13599	Haridwar	Haridwar
27	29.89663	78.13603	Haridwar	Haridwar
28	29.90492	78.13412	Haridwar	Haridwar
29	29.90316	78.13323	Haridwar	Haridwar
30	29.90296	78.13307	Haridwar	Haridwar
31	29.90044	78.13198	Haridwar	Haridwar
32	29.89823	78.1318	Haridwar	Haridwar
33	29.89596	78.13168	Haridwar	Haridwar
34	29.89419	78.13162	Haridwar	Haridwar
35	29.89207	78.13202	Haridwar	Haridwar
36	29.8896	78.13371	Haridwar	Haridwar
37	29.89012	78.13331	Haridwar	Haridwar
38	29.89069	78.13277	Haridwar	Haridwar
39	29.88604	78.1347	Haridwar	Haridwar
40	29.86261	78.13498	Haridwar	Haridwar
41	29.86081	78.13765	Haridwar	Haridwar
42	29.8601	78.13886	Haridwar	Haridwar
43	29.85439	78.14537	Haridwar	Haridwar
44	29.8478	78.14937	Haridwar	Haridwar
45	29.83883	78.15123	Haridwar	Haridwar



S. No.	Lat	Long	Range	Division
46	29.83574	78.1511	Haridwar	Haridwar
47	29.83225	78.15143	Haridwar	Haridwar
48	29.83533	78.15448	Haridwar	Haridwar
49	29.83981	78.15354	Haridwar	Haridwar
50	29.84106	78.15329	Haridwar	Haridwar
51	29.84438	78.15161	Haridwar	Haridwar
52	29.84422	78.15156	Haridwar	Haridwar
53	29.84578	78.15063	Haridwar	Haridwar
54	29.84956	78.15086	Haridwar	Haridwar
55	29.85322	78.15026	Haridwar	Haridwar
56	29.85541	78.14817	Haridwar	Haridwar
57	29.85767	78.14526	Haridwar	Haridwar
58	29.85887	78.14352	Haridwar	Haridwar
59	29.85956	78.14285	Haridwar	Haridwar
60	29.86514	78.14236	Haridwar	Haridwar
61	29.86658	78.14231	Haridwar	Haridwar
62	29.87044	78.14233	Haridwar	Haridwar
63	29.8742	78.14287	Haridwar	Haridwar
64	29.87825	78.14144	Haridwar	Haridwar
65	29.87953	78.14303	Haridwar	Haridwar
66	29.88525	78.13949	Haridwar	Haridwar
67	29.88658	78.13916	Haridwar	Haridwar
68	29.88722	78.13915	Haridwar	Haridwar
69	29.87953	78.14303	Haridwar	Haridwar
70	29.88525	78.13949	Haridwar	Haridwar
71	29.88658	78.13916	Haridwar	Haridwar
72	29.88722	78.13915	Haridwar	Haridwar
73	29.88871	78.13937	Haridwar	Haridwar
74	29.89024	78.13644	Haridwar	Haridwar
75	29.89003	78.13735	Haridwar	Haridwar
76	29.8906	78.12531	Haridwar	Haridwar
77	29.90028	78.13158	Haridwar	Haridwar
78	29.90455	78.12391	Haridwar	Haridwar
79	29.90504	78.12462	Haridwar	Haridwar
80	29.89612	78.11468	Haridwar	Haridwar
81	29.89963	78.12147	Haridwar	Haridwar
82	29.89341	78.11273	Haridwar	Haridwar
83	29.83865	78.1512	Haridwar	Haridwar
84	29.83224	78.15144	Haridwar	Haridwar
85	29.83962	78.15272	Haridwar	Haridwar
86	29.85905	78.13894	Haridwar	Haridwar
87	29.86074	78.13764	Haridwar	Haridwar
88	29.89021	78.13652	Haridwar	Haridwar
89	29.84428	78.15163	Haridwar	Haridwar
90	29.83532	78.15441	Haridwar	Haridwar
91	29.84548	78.15063	Haridwar	Haridwar
92	29.84412	78.15157	Haridwar	Haridwar



S. No.	Lat	Long	Range	Division
93	29.87888	78.11814	Haridwar	Haridwar
94	29.8765	78.13017	Haridwar	Haridwar
95	29.87608	78.12977	Haridwar	Haridwar
96	29.87285	78.13297	Haridwar	Haridwar
97	29.87461	78.13459	Haridwar	Haridwar
98	29.8499	78.1516	Haridwar	Haridwar
99	29.85754	78.1454	Haridwar	Haridwar
100	29.85538	78.14814	Haridwar	Haridwar
101	29.84563	78.12816	Haridwar	Haridwar
102	29.84495	78.13324	Haridwar	Haridwar
103	29.86059	78.13072	Haridwar	Haridwar
104	29.8608	78.1237	Haridwar	Haridwar
105	29.86366	78.12797	Haridwar	Haridwar
106	29.82539	78.13968	Haridwar	Haridwar
107	29.82485	78.13895	Haridwar	Haridwar
108	29.82416	78.13942	Haridwar	Haridwar
109	29.84123	78.13753	Haridwar	Haridwar
110	29.83098	78.14228	Haridwar	Haridwar
111	29.84759	78.12552	Haridwar	Haridwar
112	29.89047	78.13228	Haridwar	Haridwar
113	29.82688	78.13787	Haridwar	Haridwar
114	29.87813	78.14112	Haridwar	Haridwar
115	29.86514	78.14234	Haridwar	Haridwar
116	29.88175	78.13541	Haridwar	Haridwar
117	29.82007	78.19695	Rasiabad	Haridwar
118	29.82401	78.20042	Rasiabad	Haridwar
119	29.82446	78.19277	Rasiabad	Haridwar
120	29.8089	78.16796	Laksar	Haridwar
121	29.81262	78.16496	Laksar	Haridwar
122	29.84516	78.18505	Shyampur	Haridwar
123	29.84516	78.18505	Shyampur	Haridwar
124	29.86683	78.18415	Shyampur	Haridwar
125	29.86724	78.18573	Shyampur	Haridwar
126	29.87129	78.18643	Shyampur	Haridwar
127	29.88356	78.18501	Shyampur	Haridwar
128	29.88537	78.18448	Shyampur	Haridwar
129	29.8911	78.17961	Shyampur	Haridwar
130	29.89817	78.17536	Shyampur	Haridwar
131	29.89701	78.17249	Shyampur	Haridwar
132	29.89533	78.17276	Shyampur	Haridwar
133	29.88328	78.18372	Shyampur	Haridwar
134	29.86792	78.18447	Shyampur	Haridwar
135	29.87171	78.17935	Shyampur	Haridwar
136	29.89358	78.17044	Shyampur	Haridwar
137	29.89398	78.17224	Shyampur	Haridwar





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