



Final Report

Inno Wild Fencing & Community Engagement to Mitigate Human-Elephant Conflict in Sidhi, Sanjay Tiger Reserve, Madhya Pradesh



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ACKNOWLEDGEMENTS

Asian Elephants are our “National Heritage Animal”. I am very much privileged getting opportunity to study our “National Heritage Animal” and their conservation. Due to habitat loss, fragmentation, urbanization and development activities the existence of Asian Elephants are in a deep matter of concern and the conflict between human and elephants are raising day by day in Sidhi area of Sanjay Tiger Reserve of Madhya Pradesh so it was difficult to take up conservation programme for them without the support I have received from my entire team members, governmental and non-governmental institutes, etc. I would like to thank the individuals and organizations who have made it possible to implement the project.

I am grateful to the The Nature Conservancy, India for approving this project proposal and providing financial support to carry out this project. Without the financial support it would have not been possible to create a better HEC management and create a peaceful coexistence between human & elephants in this region. I am thankful to Dr Aditya Gangadharan and Mr. Ashok Biswal of TNC for facilitating our entire project.

I am deeply thankful to Mr. Subharanjan Sen, APCCF Wildlife of Madhya Pradesh Forest Department for giving me and my team enormous support, advice and motivation to complete this project.

I am also thankful to Field Director and Joint Director of Sanjay Tiger Reserve of Madhya Pradesh Forest Department for giving me and my team enormous support to complete this project.

I am deeply indebted to Range Officer of Pondi and Madwas for their guidance, positive energy and warmth that he showed all through the project.

I am also thankful to Madhya Pradesh Tiger Foundation Society for all the support.

EXECUTIVE SUMMARY

Inno wild fencing and community engagement to mitigate human elephant conflict project was approved in April 2023 by The Nature Conservancy, India. As the human elephant conflict incidents are raising in an rapid rate in Sidhi, Sanjay Tiger Reserve, Madhya Pradesh from 2017 and very limited recourses and conflict mitigation interventions are available till date.

We have identified that elephants are coming from Chattisgarh during paddy season for raiding the crop. Mainly elephants are raiding crops in July to September and November to January of every year. We have also identified the movement routes of elephants along with the fodder composition of the forest areas. It has been found that 70-80 elephants are coming from Chattisgarh to this area during paddy seasons and 10-15 elephants are straying in this area throughout the year.

After identification we have started interacting with villagers of this region to understand the main reason of this conflict along with the importance of human elephant coexistence. We have organized more than 20 systematic sensitization workshops and group meeting with the stakeholders during this last 3 months over a 812Sq Km landscape. Total 3760 villagers and stakeholders are sensitized directly.

When asked about the reasons responsible for the conflict, 20.96% of the respondents answered that due lack of understanding of elephant behavior and less conservation mitigation interventions the conflict situations are raising day by day.

The HEC awareness was seriously lacking among the local communities as only 12.66% respondents have slight idea about elephant behavior, foraging patterns, do's and dont's during conflict situations.

Conservation awareness campaigns were regularly held based on questionnaire survey. Villages located near the study area were made more aware about the human elephant coexistence and do's and don't's during conflict situations.

After identification of conflict incidents and interaction with the villagers we have finalizes the location for the installation of inno wild fencing with spring poles and early warning system and completed the installation process and also we have formed 5 elephant quick response team comprising of villagers and provide them training regarding how to tackle HEC in a better way and create a peaceful coexistence.

We have also constantly liaising with Madhya Pradesh Forest Department, local administrations, and villagers and other stakeholders regarding the progress of our project.

We have also identified the fodder composition inside forest area and prepared conflict hotspot maps for better HEC mitigation management.

To conclude, financial support for this project showed the importance of research, study and conservation interventions for the mitigation of human elephant conflict in this region and create a peaceful coexistence. The results of this project show the way for future HEC mitigation management in Sidhi area.

PROJECT DETAILS

Project Title	Inno Wild Fencing & Community Engagement to Mitigate Human-Elephant Conflict in Sidhi, Sanjay Tiger Reserve, Madhya Pradesh
Project Coordinators	Koustav Choudhury (SNAP Foudation) Mr. ArjanBasu Roy (NMNC)
Team Members	Mr. Rishin Basu Roy (Co-Project Leader) Miss. Shimu Saha (Co-Project Leader) Miss. Devsena Roy Choudhury Mr. Pradyut Roy Mr. Sanatan Goswami Mr. Dipanjan Chakraborty Mr. Pritam Saha
Project Approval	April 2023
Report Period	April 2023 to June 2023
Objectives	<ul style="list-style-type: none"> • Identifying key threats to human elephant coexistence • Determining the elephant migration, movement and conflicted hotspot for better HEC mitigation management. • Increase understanding about do's and don't during HEC situation. • Increase tolerance towards elephants of stakeholders. • Developing an effective HEC mitigation strategy for better HEC management and installation of 5 Km inno wild fencing with spring poles and early warning system and formation of 5 elephant quick response team.

INTRODUCTION

Madhya Pradesh is one of the richest biodiversity in India. Landscape consist of Tiger Reserves, National Parks, Reserve Forests, Human Settlement and other liner infrastructure. It is mainly a Tiger dominated landscape. Till 2018 no human elephant conflict incidents were recorded in the state, as per All India Synchronous Elephant Population Estimation only seven elephants presence were recorded which were migrated from Chattishgarh, but now the no rising unto 60 as per MP Forest department. Due to lac of awareness and other mitigation interventions the conflict incidents are raising in a rapid rate including crop and property damage, human injuries and deaths along with elephant injuries. First human killed by a jumbo on 2019 at Sidhi of Sanjay Tiger Reserve and the no raises in a rapid rate (2 human died in STR, Sidhi and Shadow District in 2019, 4 human died in Anuppur,seoni in 2020, 6 human died in STR,Sidhi and Anuppur in 2021). Elephants are basically coming from Chattisgarh. Illegal felling of trees, shrinking of habitat due to mining, infrastructure development, power projects, urbanisation and other reasons were forcing elephants to move from Jharkhand and Odisha to Chattisgarh to Madhyapradesh. Wild elephants have killed 12 people in Madhya Pradesh in last five years, including eight in the three districts surrounding Sanjay Tiger Reserve.

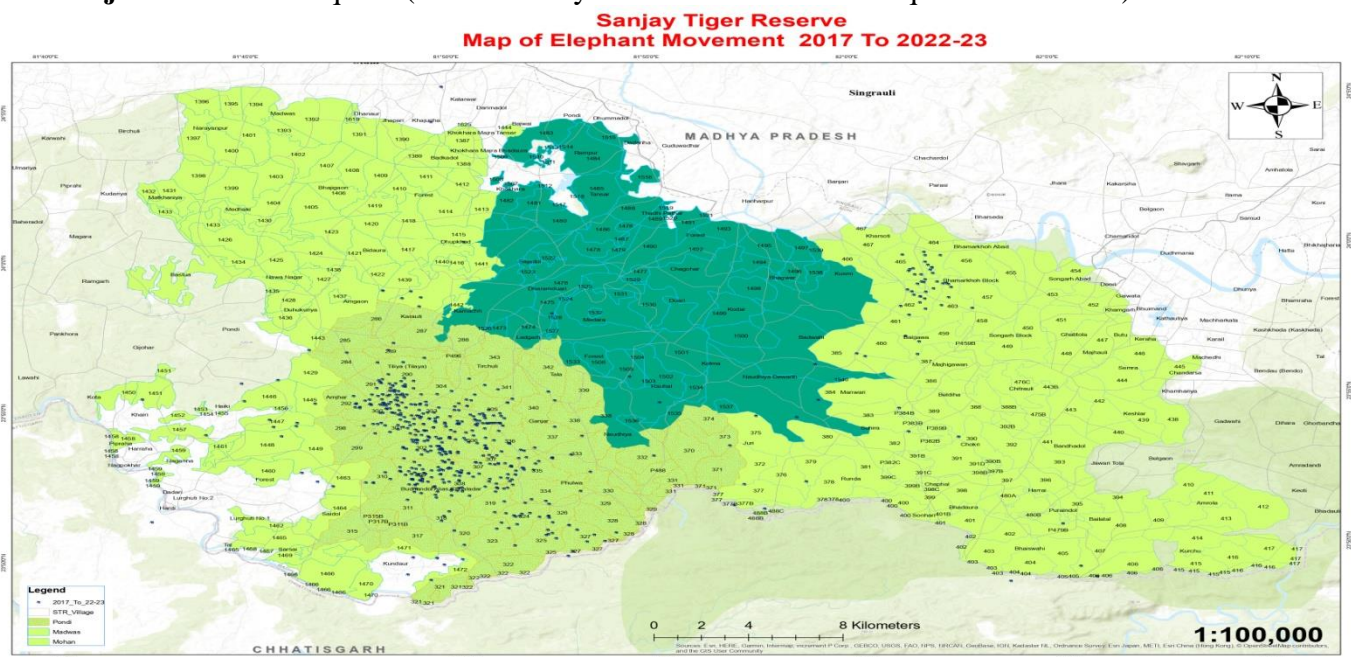
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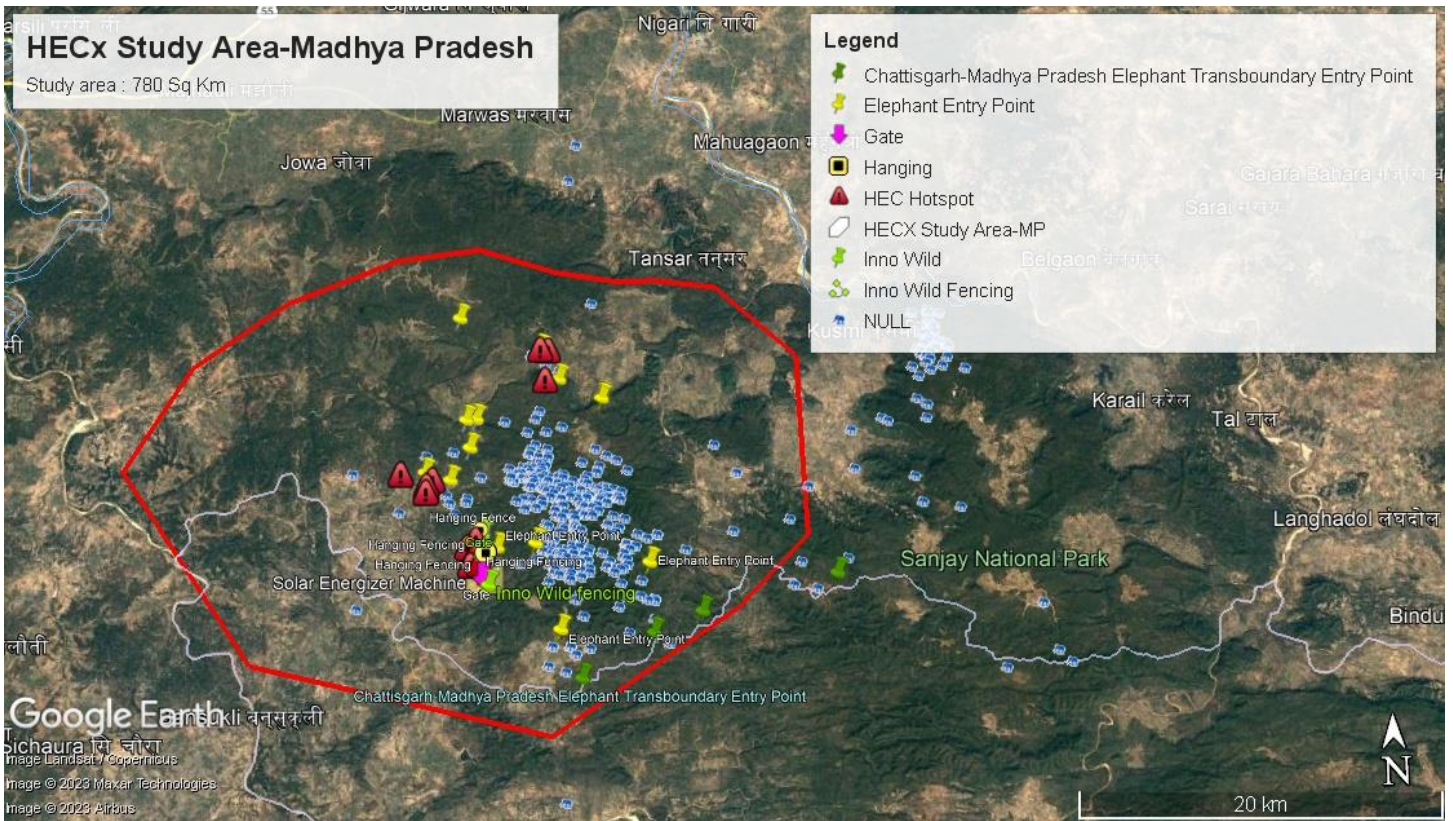
Project Area:

Geographic location: Area under this project covered Pondi, Bastua, Khairi, Haiki, Amgaon, Amjhar, Tiliya, Saidol, Rampur, Kundar, Tal and Lurghuti area of Sidhi district and of Madhya Pradesh. This areas has a unique landscape consist of Tiger reserve, sal and bamboo dominated reserve forest, rural human settlement and interstate elephant corridor.

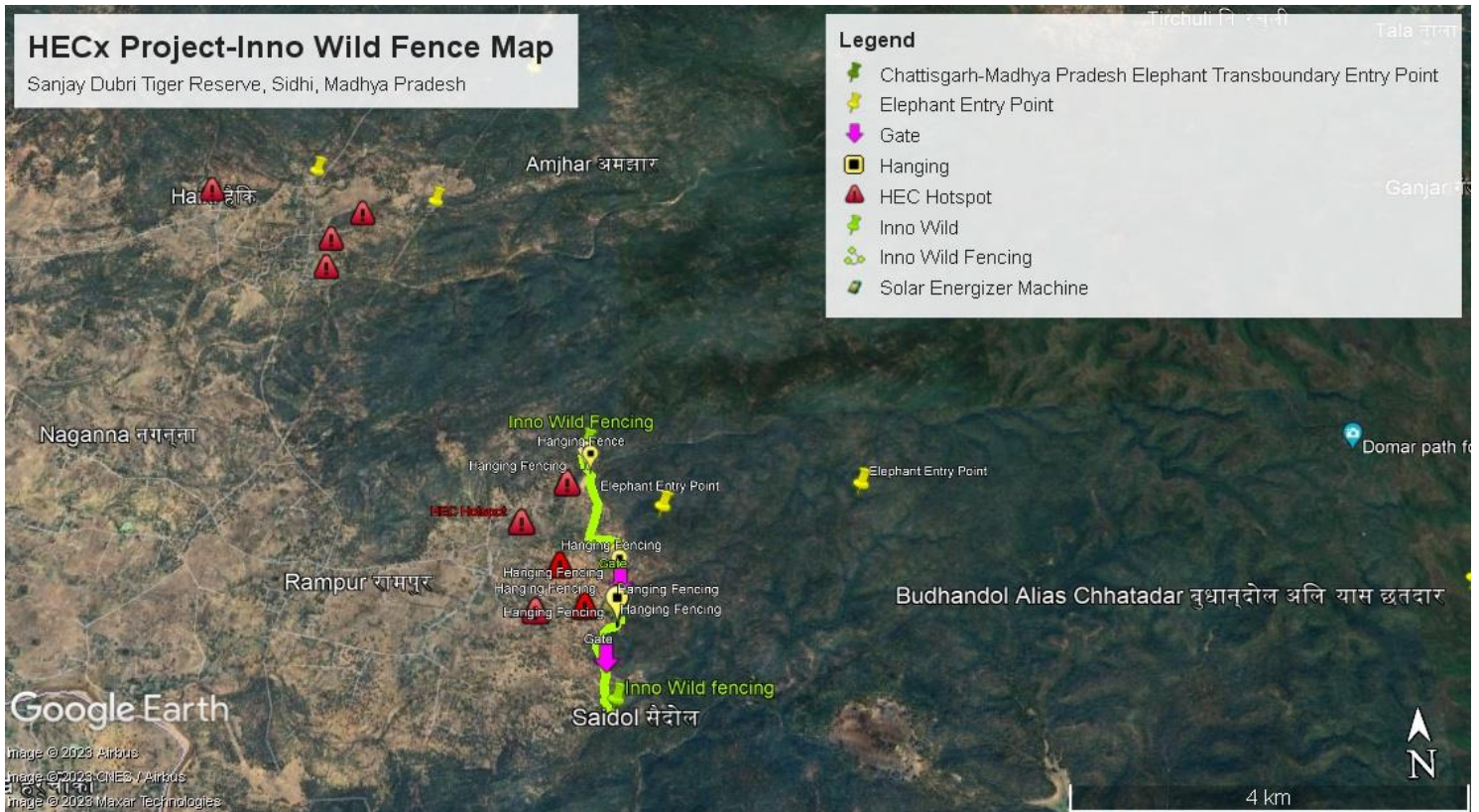
Geo location : 23°48' 24" N 81°28'30" E to 24°70'38" N 82°14'38" E

Total Project Area : 812Sq Km (780Km study area with additionl 32 Sq Km buffer area)





Elephant Movement Map of Study Area



Map of Inno Wild Fencing with Spring Poles and Early Warning System

Characteristics and inventory of flora and fauna

The forest vegetation comprises of North Indian moist deciduous peninsular sal (3C/C2e) and North Indian dry deciduous peninsular sal (5B/C1c). The forests in the Dubri sanctuary range from dense to open sal forests with remains of degraded bamboo stumps. The national park area has dense to very dense forests with a closed canopy at many places, with thick bamboo clumps providing shelter to wild elephants.

Tiger and elephant are the major species found in the reserve. Sloth bear and panther are other major attractions. Spotted deer, blue-bull, chinkara, barking deer and wild pig are the major prey species.

METHODOLOGIES & ACTIVITIES

Approval of this project was conveyed to us in March 2023. Hence we started the activities right from April 2023 as the financial support for the same was ensured. HEC a. Details of the activities carried out during the e raising in a rapid rate in Sidhi area from last 5-6 years, so initially we have interacted with the Madhya Pradesh Forest Department Officers and Staffs regarding the project and finalizes the activities and project location. The project methodologies and activities are given below.

1. Identification and analysis of human elephant conflicted hotspot and mapping

After consultation with the ground level forest staffs we have visited the villages and areas where previous conflict incidents were recorded in Khairi, Haiki, Lurghuti, Amgaon, Amjhar, Kundor, Pondi, Kota and Tal of Sanjay Tiger Reserve, Sidhi, Madhya Pradesh, we have stated interacting with village residents farmers regarding the conflict incidents and other losses like crop and property damage by questioner survey.

Result :

We have identified the conflict areas and details about the incidents and with those data we have prepared a conflict hotspot map of the study area.

2. Sensitization, Awareness and Elephant Quick Response Team :

After fetching the reason, we have stated sensitization and awareness in targeted villages. We have finalize 780Sq Km area of Sidhi District and Sanjay Tiger Reserve and additional of 32 Sq Km as buffer area. We have conducted 17 workshops and group meetings along with meeting with administrative personnel, political leaders and Madhya Pradesh forest department. We have also conducted more than 5 meetings with stake holders like farmers cooperative and other stake holders. We have also conducted workshops and meeting in “Tendu Farms” regarding the importance of human elephant coexistence, importance of elephants in our ecology and do’s and don’t during conflict situation. We have also formed 5 Elephant Quick Response Team comprising of 4 members in each team from Lurghuti, Haiki, Khairi, Kundor, Pondi, Tal and Kota area. We have trained them about how to conduct awareness workshops for the villagers, how to control and deal with the crowd during conflict situation, sharing information regarding elephant movement and how to scare them away when they are entering into villages without any harm to them. We have also distributed searchlights, megaphones, sirens and whistles to them.

Result :

After 90 days of sensitization and awareness and intervention stakeholders and villagers are well versed about the importance of elephants in our ecology and coexistence. They have also understand to some extent that what to do and not to do during conflict situations and consequences of disturbing an elephant. They have also given us assurance that they will also work with us and forest department for the protection of our precious elephants. EQRT members are well motivated and they are now work as a team and protect our “National Heritage Animal” .

Areas	Total workshops/ group meetings	No of person sensitized
Lurghuti	5	650
Haiki	2	120
Khairi	2	132
Amgaon	2	80
Pondi	2	160
Tal	2	145
Kundor	2	115
Tendu Farms	5	460
EQRT	5	60
Total	27	1922

3. Fodder and Cropping Pattern Analysis

We have analyzed the fodder composition of the elephants inside the forest area and we have also identified what farmers are cultivating and palatable for elephants. We have studied the location, interacting with the villagers, ground level staffs and forest officers for getting this data. We have identified that the landscape dominated by Sal (*Shorea robusta*) and Bamboo (*Bambusa vulgaris*). We have also identified the cropping pattern and palatable crop for elephant.

Results :

We have identified tree bearing fodders inside forest are :Mohulain, Char, Gurja, Salaiya, Bichla, Chendi, Jigna, Pepal, Bara, Kat mahula, Tendu etc. The major fodder is Bamboo. We have also identified the grass fodders those are :Chendi, Chepti, Dhadda, Chorati, Khar, Chika, Marwal, Bhore, Bhusbhusia etc.

We have identified that main crops are Paddy, Maize, Wheat, Jackfruits, Chickpea, Banana, Pigeon pea etc. and Mahua (*Madhuca longifolia*) which elephants like most as these species has more caloric value than inside forest tree and grass fodders.

4. Installation of Inno Wild Fencing

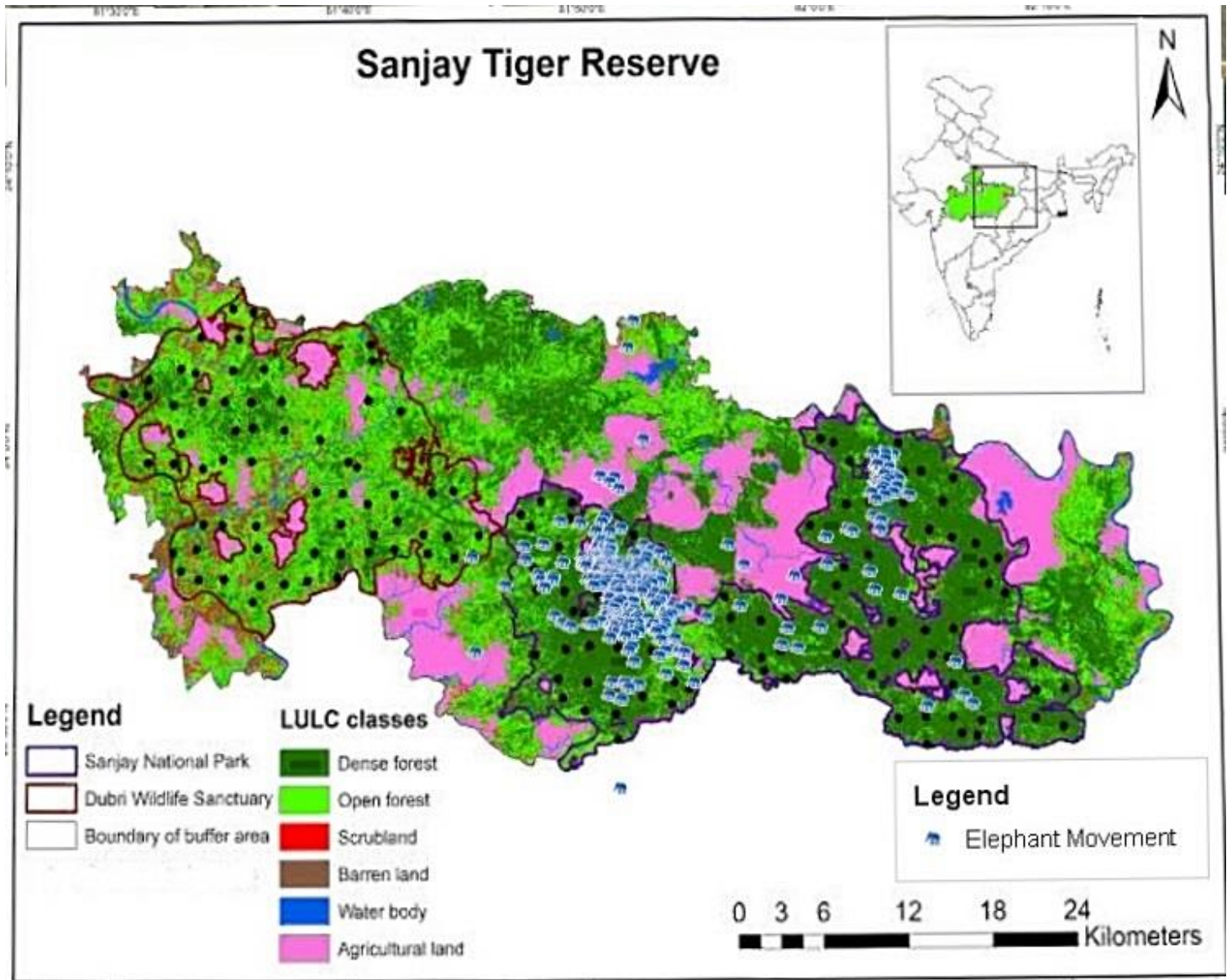
After analyzing all the data such as human elephant conflict incidents, cropping pattern, land use pattern, elephant population and distribution in Sidhi, Sanjay Tiger Reserve, Madhya Pradesh we have identified a 5km stretch in Lurghuti area for the installation of inno wild fencing with spring poles and early warning system. We will also use a unique hanging fencing design to cover 8 water sources in this fencing design.

Materials Description	Total Number	Total Coverage (Meter)
Fixed Poles	90	5000
Spring Poles	200	5000
Hanging Fencing	8	600
Early Warning	3	1000
Warning Sign Boards	20	5000
Energizer System	1	5000
Fencing Gate	2	5000
Water Bodies/Streams to be covered	8	600

5. Land Use Land Cover Study

We have conducted a baseline land use land cover survey of Sanjay Tiger Reserve using GIS and satellite imaging. The total study area is 780 Sq Kmand the landscape dominated by Shorearobusta and Bambusavukgaris. It falls under the sub-group “North Indian moist deciduous forest” with sub-type “Moist sal-bearing forest”, according to the revised classification by Champion & Seth (1968). Other major tree species found in the landscape Buchananiacochinchinensis (Char), Diospyrosmelanoxyton (Tendu), Madhucalongifolia (Mahua) etc. LULC types are categorized into six classes, i.e, dense forest, open forest, scrubland, barren land, water bodies and agricultural land. We will also include elephant movements in the LULC map. The elevation varied from 239 to 770 m. Approx 28% are dense forest, 23% are open forest, 19% are agricultural land are present in the study area.

Land Use Land Cover Map of Study Area



CHALLENGES

Total duration of the project was 90 day, which was initially a great challenges for us as we have to complete 5 major deliverables in a very short span of time. We have also faced a huge problem regarding the project field location, because the project location is in a remote forest and fringe area which is not at all connected with local transports like train, flight, buses etc. Very limited resources are available in field location regarding logistics. We have also faced a huge problem as monsoon hit our project timeline badly. But after so many odds and unfavourable situations, our team did a splendid job and put all their efforts and dedication towards the completion of the project deliverables. We are also thankful to The Nature Conservancy and Madhya Pradesh Forest Department for there enormous support for the project which was also helping us to overcome all the limitations.

OUTCOME

Due to constant monitoring and sensitization residents of this areas are well aware now, they understand the importance of elephants for our ecology and environment. They also understand the importance of coexistence. Elephant Quick Response Team members are well motivated and got the training and HEC kit. EQRT teams are working well in coordination with Madhya Pradesh Forest Department along with “HatiMitra Dal” for better HEC conflict mitigation management.

Land use land cover and hotspot map has been prepared with basic baseline data and need to prepare with more details in future.

5 Km of inno wild fencing with spring poles, hanging fencing and early warning system are already being installed and working in a well for the protection of both elephant, other wildlife and human live in Lurghuti area of Sanjay Tiger Reserve. We have used an unique combinational fencing design which consist of **Solar Energizer Machine, Solar Panel, Battery, Spring Poles, Hanging Fencing and Early Warning System**, which gives us very good result till now and hope for more better outcome in future and will upscale this design in other conflicted areas.

RECOMMENDATION

Extensive elephant movement monitoring, conflict data management, cropping pattern and LULC changes study are highly recommended with “Software & Mobile Application” based platform for better data keeping and mining and better modern HEC Management. More community based interventions are required like various livelihood development activities, alternative cropping practices etc. Fodder plantation and habitat management are also highly recommended for better HEC management. Adoption of AI based elephant detection and early warning system, automatic elephant collaring system, SMS and GPS based movement alert system along with more inno wild fence and bio fencing solutions are highly recommended for better elephant conservation management plan.

Photographical Documentation



Chattisgarh-MP Elephant Corridor Monitoring



Elephant Movement Monitoring



HEC Conflict Hotspot Mapping



Elephant Dung Analysis



Elephant Fodder Analysis



Elephant QRT Group Meeting



Village Level Workshop



Village level Workshop



Spring Poles Design



Inno Wild Fencing Installation



Fencing Voltage Testing



EQRT Training & Kit Distribution



Inno Wild Fencing



Warning Sign Board for Inno Wild Fencing



Early Warning System



Energizer Machine



Fencing Inspection by Forest Officials and Local Villagers to Understand the Working Principal



Hanging Fencing



Opening of Inno Wild Fencing and Panchayat Level Workshop



Panchayat and Local Administration Level Meeting and Opening of Fencing

Annexure – I

Project Permission Letter

Office of Principal Chief Conservator of Forests (Wildlife), Madhya Pradesh

Pragati Bhawan, BDA Complex, 3rd Floor, M.P.Nagar Zone1, Bhopal462011

Phone:0755-2674318, 2674206 Fax:0755-2766315

E-mail:pccfwl@mp.gov.in

Ref/ Management/WL/ 2986

Bhopal, Date
29.3.2023

To,

Mr. Rishin Basu Roy,
Nature Mates Nature Club,
Email: naturemates@gmail.com

Ref: Your Email, Dated: 13.03.2023

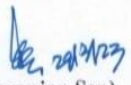
Thank you for your proposal we will be happy to try out elephant friendly fencing in Madhya Pradesh. We will be grateful to the Nature Mates Nature Club as well as SNAP Foundation for this contribution.

We would like to deploy them in Sanjay Tiger Reserve, Sidhi. Please go ahead with the Project.

We would like to implement this through our foundation, The MP Tiger Foundation Society.

Regards

Thanking You


(Subharanjan Sen)
APCCF (Wildlife)
Madhya Pradesh, Bhopal

Annexure – II

Project Completion Letter

Office Of The Chief Conservator Of Forest and Filed Director
Sanjay Tiger Reserve,
Shivajee Nagar, Naudiya, District, Sidhi Pin Code 486661 (M.P.)
E-mail- fdsajnp.sdh@mp.gov.in, ddsajnp.sdh@mp.gov.in, website- www.sanjaytigerreserve.org, Ph.No.- 9425768669

No./2023/ 4047 Sidhi, Date: 30/7/2023

To,


1. The Secretary
Nature Mates Nature Club
2. The Executive Director
SNAP Foundation

Sub :- Project Completion Letter

Ref :- Management/WL/2986, dated 29.03.2023/ Ro pondi Letter No. 370, dated 08.07.2023

—00—

In connection with the above mentioned reference, the installation of Inno Wild Fencing with spring poles and Early Warning System, Formation of Quick Response Team and Hotspot Mapping has been completed on 30.06.2023 in Sanjay Tiger Reserve, Sidhi


Deputy Director,
Sanjay Tiger Reserve, Sidhi

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next...

आदि
रेयर



डिजिटल
प्रदर्शन

न हसुन
क्स
शियन और

नई कवायद: जंगल व गांव की सीमा में लगाई जा रही इलेक्ट्रिक फेंसिंग

ग्रामीणों की सुरक्षा के लिए विभाग हाथियों को देगा करंट का झटका

पत्रिका न्यूज नेटवर्क
patrika.com

सीधी. पधरौला. जिले के संजय टाइगर रिजर्व एरिया अंतर्गत लगातार आतंक का पर्याय बने जंगली हाथियों से सुरक्षा अब करंट का झटका देकर की जाएगी। गांव और जंगल की सीमा में वन विभाग द्वारा एलीफेंट इलेक्ट्रिक फेंसिंग लगाने का काम शुरू किया गया है। इसके तहत संजय टाइगर रिजर्व सीधी के वन परिक्षेत्र मड़वास बफर जोन अंतर्गत ग्राम लुरघुटी से प्रयोग के तौर पर इलेक्ट्रिक फेंसिंग लगाई जा रही है। गत दिवस सहायक संचालक संजय टाइगर रिजर्व सीधी



विनीता फूलवेल, परिक्षेत्र अधिकारी मड़वास संजीव रंजन, बीट गार्ड राजबहोर पटेल, रमाकांत तिवारी, संदीप सोनी, देवकुमार पनिका एवं

ग्रामीणों की उपस्थिति में ग्राम लुरघुटी में हाथियों से सुरक्षा की दृष्टि से तकरीबन 5-6 किलोमीटर एलीफेंट इलेक्ट्रिक फेंसिंग लगाई

गई है। इसका निर्माण कालकलाता से आई हाथी एक्सपर्ट की टीम द्वारा किया गया है। हाथी एक्सपर्ट टीम द्वारा बताया गया कि हाथी जैसे ही

फेंसिंग के संपर्क में आएंगे तो उन्हें करंट का झटका लगेगा, जिससे हाथी गांव में प्रवेश करने की बजाय वापस जंगल में चले जाएंगे। इससे हाथियों के जान को कोई खतरा नहीं होगा। बताया गया कि संजय टाइगर रिजर्व एरिया अंतर्गत दर्जनों गांवों में बीते पांच वर्षों से लगातार जंगली हाथियों द्वारा तांडव किया जा रहा है। जिसमें तकरीबन आधा दर्जन ग्रामीणों की जान जा चुकी है और सैकड़ों ग्रामीणों का आशियाना इन हाथियों के झुंड द्वारा उजाड़ दिया गया है। ऐसी घटनाओं को रोकने के लिए संजय टाइगर रिजर्व एरिया अंतर्गत ग्राम लुरघुटी से प्रयोग के तौर पर एलीफेंट इलेक्ट्रिक फेंसिंग का काम किया जाएगा।

लुरघुटी गांव से की है। यदि यह प्रयोग सफल रहा तो इसे सभी हाथी प्रभावित गांवों में लगाने का काम किया जाएगा।

जंगली हाथियों से ग्रामीणों के जान माल की सुरक्षा के लिए एलीफेंट इलेक्ट्रिक फेंसिंग लगाने का काम प्रयोग के तौर पर लुरघुटी गांव से शुरू किया गया है। यदि यह प्रयोग सफल रहा तो सभी हाथी प्रभावित गांवों में एलीफेंट इलेक्ट्रिक फेंसिंग लगाने का काम किया जाएगा।

संजीव रंजन, परिक्षेत्र अधिकारी, वन परिक्षेत्र मड़वास बफर

चार घंटे बंद रही शहर के एक चौथाई हिस्से में बिजली, गर्मी से बेहाल रहे लोग

शहर में 4 घंटे का ब्लैक आउट

मारपीट का आरोपी गिरफ्तार