

This report will be made public. If it contains confidential or sensitive information, please also provide a revised report for sharing with the public.

Section I. Project Information	
<b>Project Title:</b> Promoting human tiger co-existence to secure the future of Bengal tigers	
<b>Grantee Organisation:</b> Zoological Society of London	
<b>Location of project:</b> Northern buffer zone of Parsa National Park (PNP), in community managed forest corridors and Churia forests (27.43°N 84.89°E)	
<b>Size of project area (if appropriate):</b> 300 sq.km (approx.)	<b>No of tigers in the project area, giving evidence &amp; source:</b> 41 tigers in Parsa National Park (PNP) (Ministry of Forest and Environment, Government of Nepal, 2022)
<p><b>Partners:</b> <i>(Please give details of partners, including communities, academic institutions, etc. for this project.</i></p> <p><b>DNPWC</b></p> <p>DNPWC is the main government authority providing oversight for conservation and management of wildlife in Nepal. It is responsible for the overall management of Nepal's Protected Areas (PAs) including the buffer zones. ZSL signed an initial MoU with DNPWC in 2014, renewing for five years in 2019, and has close working relationships with the Parsa National Park (PNP) PA manager and DNPWC staff in PNP. DNPWC facilitated the implementation of the project activities and was responsible for the overall monitoring and evaluation of the project, through the Project Coordination Committee (PCC) (detailed in M&amp;E section), a monitoring mechanism established under the DNPWC-ZSL MoU. The project helped DNPWC gain valuable knowledge and improve suitable tiger habitats across the Churia and community managed corridor forests, which will be applied to other tiger-bearing PAs of Nepal, to mitigate human-tiger conflict (HTC) in Banke NP, Bardia NP, and Shuklaphanta NP's buffer zone. The project was prepared under the guidance of DNPWC and obtained the required permission needed.</p> <p><b>Parsa National Park (PNP)</b></p> <p>In 1984 PNP was gazetted as a wildlife reserve, primarily aiming to preserve the wild Asian elephant (<i>Elephas maximus</i>) and their remaining habitat, including other varieties of fauna. In 2015, the reserve area was extended to 627.39 sq.km from 499 sq. km and in 2017 the status was upgraded from a wildlife reserve to a National Park. PNP plays a vital role in achieving the goals and objectives of PA management regimes in Nepal, as it provides critical habitat for endangered species including tigers, and transboundary connectivity with Chitwan NP (CNP, Nepal) and Valmiki Tiger Reserve (VTR, India). PNP is also part of the Terai Arc Landscape (TAL), which is a globally important landscape for tiger conservation. The previously established Project Management Unit (PMU) at PNP, chaired by the Chief Conservation Officer of PNP with the members of ZSL, was central in facilitating and implementing project activities. The members of the PMU were responsible for coordinating and</p>	

facilitating project activities, monitoring progress, and reporting to the PCC. This project supported HTC reducing activities, through implementing mitigation measures and delivering community awareness across tiger habitats and conflict hotspots, enabling the suitable habitat for tigers. The project will monitor the dispersal of tigers across the surrounding buffer zone and Churia forests and supports PNP managers for effective management interventions and tiger specific conservation strategies and planning in the Churia region.

#### **Mithila Wildlife Trust (MWT)**

MWT is a non-profit non-governmental organisation (NGO) established in 2069 BS (2013 AD) by a group of committed professional nature lovers. MWT has been organizing and strengthening capacities of local volunteers for planning, implementing, and monitoring social development programs thereby facilitating their own and community's welfare through sustainable and wise use of natural resources.

**Project Contact Name:** *(main contact via email)*

Hem Sagar Baral

**Email:** hem.baral@zsl.org

**Actual start date of project:** 1 February 2022

**Reporting period:** 1 February 2022 – 31 January 2023

Please ensure that your report relates to the objectives and activities detailed in your proposal and log frame. Please include results data in Section II and Section III.

#### **Section II. Project Results**

**Long Term Impact:** *(How has this work contributed to the vision and long-term impact that your project aims to achieve?)*

ZSL Nepal has implemented several tiger conservation projects in PNP and its buffer area since 2014. Through these projects and through working in collaboration with partners in the landscape, ZSL has supported PNP in achieving a fourfold increment in its tiger population and has lobbied successfully to integrate a 129 km<sup>2</sup> extension to the PNP in 2015, providing habitat and refuge to the increasing tiger population. ZSL also supported lobbying efforts which resulted in PNP being upgraded from a wildlife reserve to a national park in 2017.

WCCA has been instrumental in tiger conservation in PNP, particularly PNP buffer zones and extended areas, through supporting different tiger conservation projects including the *PACCT for Tiger Conservation: Reducing Resource-Competition Between People and Tigers* and *Securing the future of tigers: tigers beyond protected area networks*. Despite the smaller scale intervention of this project in terms of location and activities, it nonetheless continued the legacy of previous WCCA projects, and other projects

implemented in PNP by ZSL, aligning with Government of Nepal's (GON) long-term tiger conservation goals. To ensure the project's effectiveness and sustainability, the project aligns with four of the GoN's (Government of Nepal) long-term tiger conservation goals:

1. Securing the Chitwan-Parsa Complex's (CPC) role as a globally vital tiger stronghold, which can continue to support an increased tiger population in a rapidly changing world; with high-quality habitat, local communities committed to its conservation, and connectivity to the wider landscape.
2. Securing vital connectivity between all tiger-bearing protected areas in the Terai Arc Landscape/Siwalik Landscape allowing the movement of the tigers to access the new habitats and avoid isolation of tiger population within the protected areas.
3. Improve and restore critical tiger habitats and corridors through strengthening community to proper management of community-based corridor forest.
4. Engage the local communities for biodiversity conservation to minimize negative impacts on tigers, their prey and habitats, and reduce human-tiger conflict by providing sustainable mitigation measures.

To achieve these goals, this project pursued one major objective: *A favourable environment will be created to enable the dispersal of tiger beyond the protected area (PNP) with improved human, wildlife coexistence through HWC mitigation measures including improved predator proof corrals for livestock protection and enhanced community capacity in resolving human-tiger conflicts.*

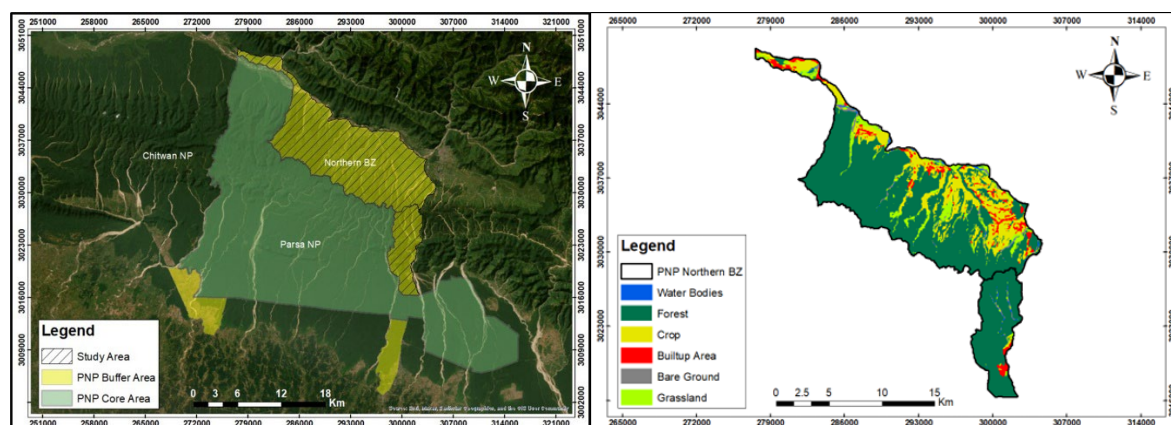


Figure 1: Northern Buffer Zone and its land cover in Parsa National Park

In accordance with this objective, current habitat patterns in the northern buffer zone and Churia region of PNP were identified through an occupancy survey, which supported PNP authorities to understand habitat patterns within the project area and implement measures to reduce human-wildlife conflict (HWC) incidents. Capacity building activities, such as mapping hotspots and wildlife tracking, were completed for Park officials, to ensure better understanding and management of the PNP landscape and ensure the sustainability of the project beyond the implementation timeframe. Likewise, information on wildlife population status, gathered through hotspot monitoring, will be useful for decision makers for developing pragmatic approaches towards better conservation outcomes. Furthermore, capacity building training was provided to Park officials, Buffer Zone User Committee (BZUC) members and local communities, to increase awareness on tiger conservation,

HWC and mitigation measures. The project also implemented a range of HWC threat mitigation tools, including support for constructing predator-proof corrals (PPCs), increasing the awareness among local communities' of HWC mitigation measures, and distributing fodder plants to decrease communities' reliance on the surrounding forest resources.

**Conservation Outcome:** *(What are the actual changes that this project has achieved?)*

The project collected data on occupancy and distribution of tigers and prey species within the northern buffer zone and Churia region of PNP. This data will be instrumental in not only reducing and applying pre-mitigation measures for HTC, but also for informing decision making by park authorities, and ensuring better conservation outcomes in the future. The project has driven behavioural change and awareness among local communities and other direct and indirect stakeholders of HWC issues, helping them to live in harmony with wildlife and reduce their dependence on the forests, while also delivering robust HTC mitigation interventions such as PPCs.

**Summary of activities and achievements:** *(Please provide a summary for use in our communication materials Max 300 words)*

The WCCA project created a database on wildlife occupancy and distribution of tiger, leopards and other mammals such as four horned antelope, spotted deer, sambar deer, gaur, golden jackal, sloth bear, wild boar (full breakdown of species in table 4, Annex), sharing results with park officials, local communities and other key stakeholders. This ensures better management of the park with increasing wildlife numbers and the adoption of planning and mitigation measures that create a favourable environment for coexistence between humans and wildlife. With the support from the WCCA project, park officials along with key frontline workers were capacitated to continue the wildlife occupancy survey and scale up the data collection from other areas of the park, through knowledge exchange meetings. Furthermore, 103 members from park authorities, local communities, and Buffer Zone User Committees, were trained on tiger conservation and HTC mitigation measures, increasing their knowledge on such topics. The project also contributed to awareness activities targeting a wide range of beneficiaries, from park officials to local communities, students, and tourists in PNP, through various mediums such as websites, advertising boards, speed limit signs and digital displays. With support from the project ZSL identified the most vulnerable communities within the northern buffer zone of PNP, providing 32 households (HHs) with PPCs 100 HH with fodder plant saplings, as pre-empted mitigation measures for HTC and for decreasing vulnerable communities' dependency on forest resources.

**Details of activities and results:** *(Please give detailed narrative of the results of each objective & output. Please include measures for example patrol numbers and distances covered)*

The project was initiated smoothly with approval, guidance, and support from the PCC at the DNPWC. A project sharing meeting was conducted on March 1<sup>st</sup>, 2022, with the PNP authorities, local communities, and stakeholders, where they were informed about the project's objective and detailed activities. Such sharing is important for ownership and support from each respective team. During the project implementation timeline all planned interventions were delivered and completed. The details of the activities completed are listed below:

## Activity 1.1: Dispersal and hotspot monitoring

### 1.1.1 Hotspot and dispersal monitoring at priority location of PNP including Churia forests.

Hotspot and dispersal monitoring was completed with the help of camera traps (Panthera V6) at three priority locations upon request from PNP, and 32 other locations in the Northern BZ and Churia regions. These locations were selected in consultation with PNP, local communities and other key stakeholders based on the qualitative and quantitative wildlife information observed and recorded during real time patrolling conducted by PNP and Nepali army staff.

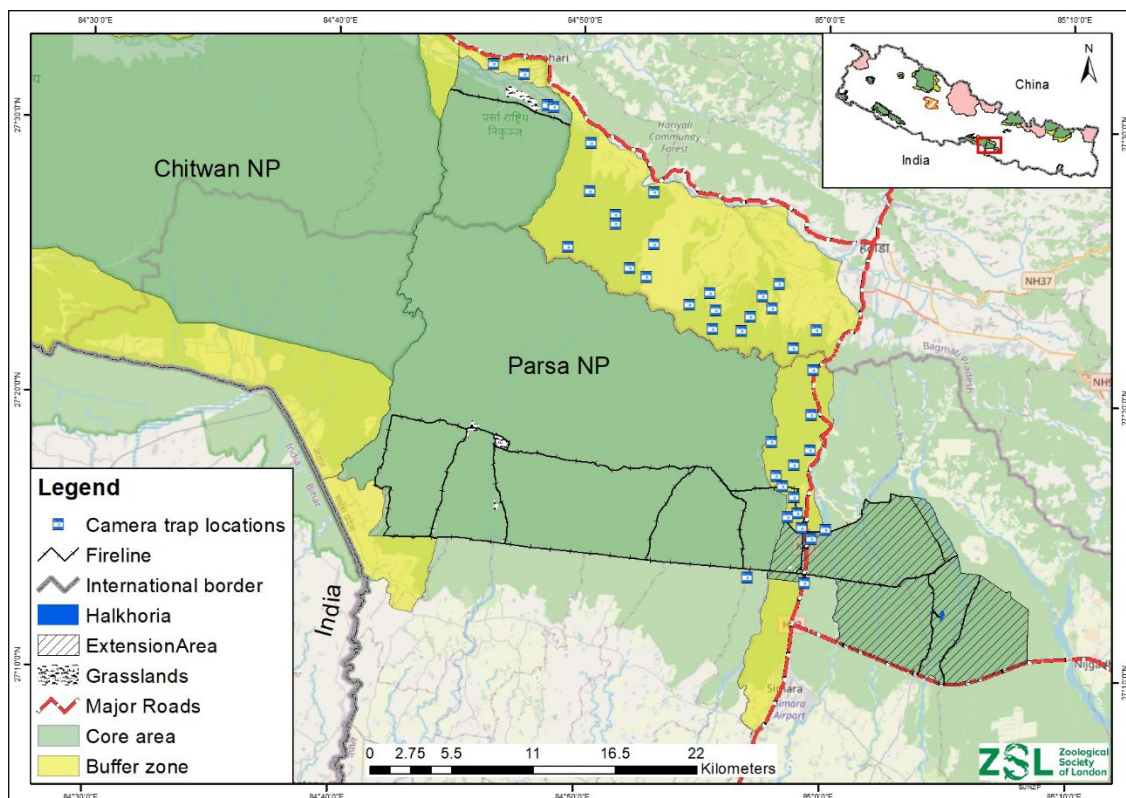


Figure 2: Camera trap locations in the Northern Buffer Zone and churia region in Parsa National Park

The deployed cameras captured 2,145 photographs of wildlife movement and human activity (mainly PA staff patrolling) including false triggers. The photographs of mammals included Bengal tiger, sloth bear, wild Asian elephant, common leopard, Indian civet, Indian bison wild boar, honey badger, and others. The data obtained was shared with and analysed by PNP, to understand the dispersal of tigers and their prey. Furthermore, the occupancy survey conducted in Northern BZ and Churia region reflected information obtained on the dispersal of tigers and their primary prey.

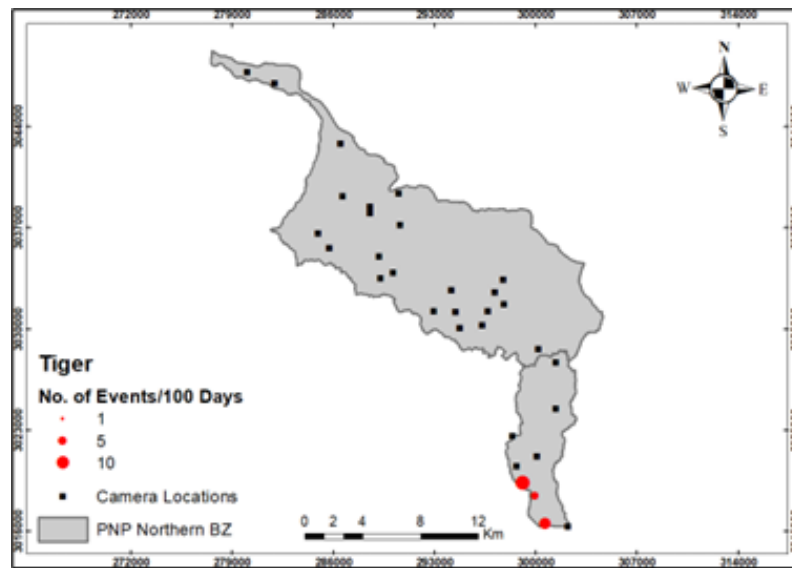


Figure 3: Tiger distribution in the Northern Buffer Zone and churia region in Parsa National Park

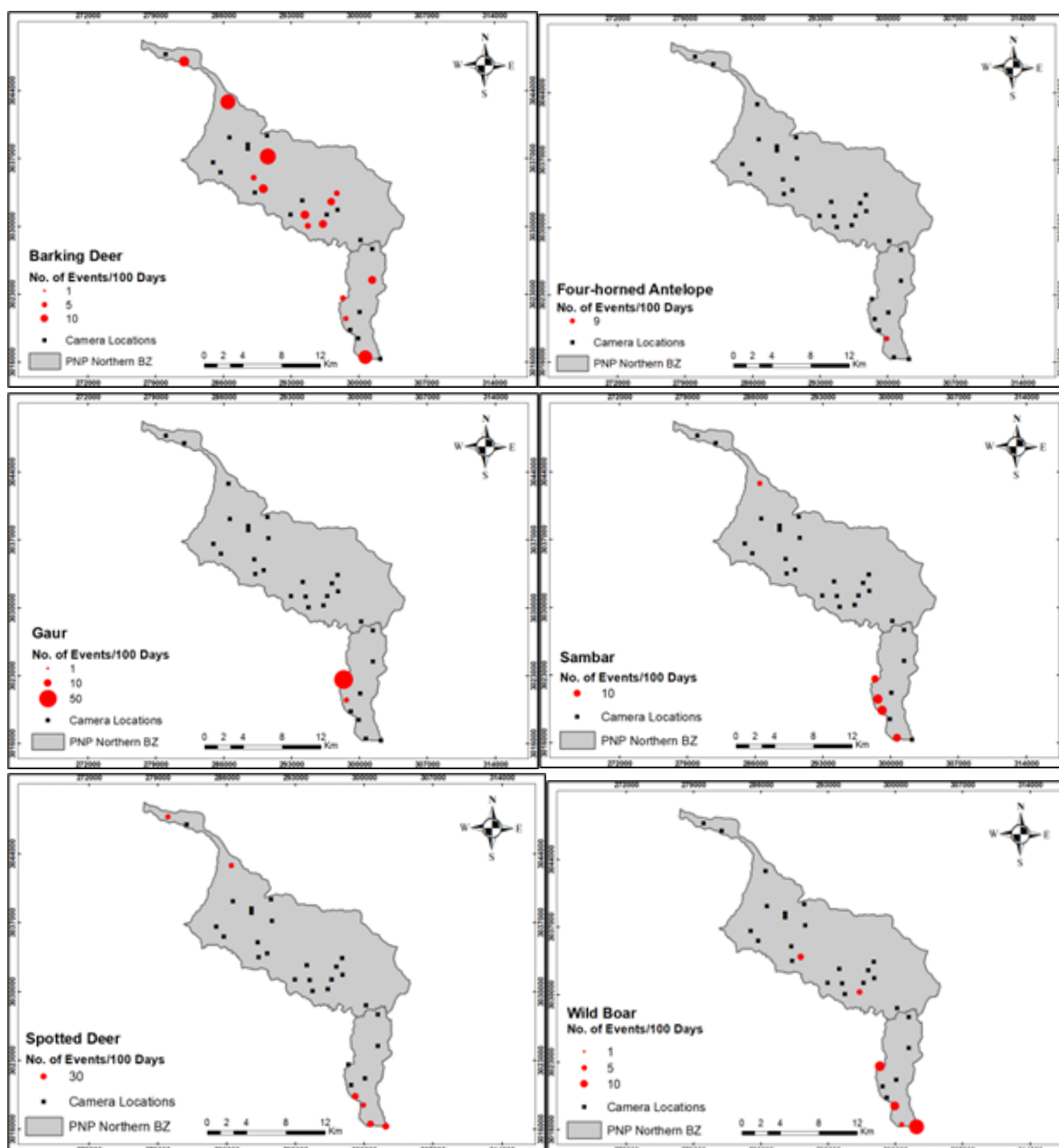


Figure 4: Distribution of tiger prey species in the NBZ and churia region of Parsa National Park, Nepal

### 1.1.2 Capacity building of PA staff on regular hotspot and dispersal monitoring.

Through this project 27 front line staff (19 game scouts and 8 Nepali Army) deployed in all 16 posts around PNP have been trained in hotspot and dispersal monitoring. The two-day training course was held at the PNP on 1<sup>st</sup> and 2<sup>nd</sup> June 2022 headquarters in the presence of Chief Conservation Officer and Commander of Nepal Army, deployed for the protection of PNP. This practical training taught frontline staff about the identification of critical hotspots, the use and handling of cameras and GPS, camera set-up, deployment and systematic data processing as guided by “Tiger and Prey Base



Monitoring Protocol 2017-DNPWC”. The trained staff in different guard posts of PNP are now able to deploy cameras at strategic locationsd.



*Opening remarks by CCO, PNP at training*



*ZSL staff presenting trainees on camera traps*



*Jointly setting up cameras in the field after class*



*Trainees applying classroom knowledge in the field*



*Trainees attempting to install cameras in the field*



*Camera traps training final day group photo*

*Figure 5: Wildlife hotspot and dispersal monitoring training for frontline staffs in Parsa National Park (PNP), Nepal*



### **1.1.3 Data sharing meeting with PNP authority**

The camera trap data collected was shared among PNP, Nepali Army, local partner and ZSL staff in quarterly information sharing meetings on 17<sup>th</sup> June 2022, 22 September 2022, and 15<sup>th</sup> January 2023 attended by the Chief Conservation Officer and Commander of Nepal Army. The data will support PNP authorities and other frontline staffs to conduct effective conservation management interventions in the park, community managed forest corridors, and Churia forests. Following these data sharing meetings, ZSL along with key stakeholders, identified distribution patterns of tigers and prey species, to apply necessary mitigation measures to reduce HTC, as well as identifying interventions required for stronger park management, such as waterhole construction or habitat management, to help sustain growing wildlife populations.

## **Activity 1.2: Raise awareness**

### **1.2.1 Provide training to the PA staff and local communities on tiger conservation and HTC and its mitigation.**

The implementing team conducted 3 training workshops for 102 key stakeholders in 3 different locations on 23<sup>rd</sup> July, 27<sup>th</sup> July and 29<sup>th</sup> July, 2022, which included local community members, PNP staff, Nepali army and representatives from local government, covering tiger conservation needs, importance of community managed forest corridors and tiger dispersal in Churia forests, HTC mitigation, and the role of tiger conservation in securing a healthy ecosystem (Table 1). The workshops were facilitated by Chairman of Manahari User's Committee and Bufferzone Council Committees of PNP, Chairman of Lokhit User's Committee, and Chief Conservation Officer, PNP respectively (Figure 4). The participants were trained to use audio visual techniques, and discussed tiger and other wildlife behaviour, and how to avoid wildlife encounters to enhance conservation efforts through communities. Representatives from the committee, user groups, buffer zone community forests, leasehold forests, youths from the community based antipoaching unit (CBAPU), local government, and authorities from PNP participated in the training workshops. Please see supplementary documents mentioned below for detail information about the training workshops and participants.

*Table 1: The breakdown of participants in three training workshops*



Figure 6: Glimpses of workshops conducted in Manohari, Lokhit and Adhabhar

### **1.2.2 Raise mass awareness through visitor information centre and hoarding boards installation.**

PNP has the responsibility and priority to conduct outreach activities and raise public awareness to create a favorable environment for human wildlife coexistence, but due to limited funding and capacity the park faced difficulties implementing these activities. With the financial and technical assistance from ZSL Nepal through the WCCA project, these activities were conducted successfully.

The project supported PNP to upgrade its visitor information centre and its official website in consultation with PNP officials. The project also supported a digital display board used by PNP staffs

to regularly display and monitor information on tiger distribution within the park, including movement patterns, and will make necessary interventions accordingly. Similarly, two information boards measuring 12x8 feet were installed through the project, one at the entrance to PNP headquarters in Adhabhar, and one next to Pathlaiya ranger station present in the park. The placements of information boards raised awareness of conservation among locals and tourists who pass through the park's central portion on the east-west route. On the roadway between the PNP office in Adhabhar and Pathlaiya Chok, Bara, five information reflector boards (double sided) with dimensions of 2 ft. square x 2 ft. square and 1.5 triangular reflectors were also erected. Information regarding wildlife crossing the road is now found on the information boards Signs such as these will help lessen traffic fatalities and accidents for both humans and wildlife, while also promoting conservation. These information boards were strategically placed targeting local communities, local students from schools and universities, and tourists visiting or passing through PNP, to ensure they reached wider audiences.



*Figure 7: Digital Display Board installed at PNP headquarters*



*Figure 8: ZSL Nepal's staffs installing information board on the park's suggested roadways.*





Figure 9: The ZSL Nepal staffs placing information reflector board on the highway.

### Activity 1.3: HTC mitigation and management measures

#### **Activity 1.3.1: Support BZUC with PPC and fodder plant sapling as pre-empted HTC mitigation measure**

PNP is connected with Chitwan National Park and Valmiki Tiger Reserve on its western and southern sides. Therefore, the PNP's northern buffer zone is abundant in natural resources, with regular spotting of tigers, elephants, leopards, one-horned rhinos, and other animals. With the increasing populations of tigers and leopards' within and around PNP, there is an increased risk of visiting predators moving towards communities in the vicinity of the park in the quest of prey. ZSL has been working in this transboundary landscape since 2014 on pre-empted HTC mitigation measures which are especially important in light of the increased tiger population.

Considering this emerging challenge and pressing need, as part of this project ZSL built on existing pre-empted HTC mitigation measures by identifying and supporting thirty PPCs in Manahari and Lokhit Buffer Zone User Groups to minimize livestock predation and HWC in these areas (full breakdown provided in table 1, Annex). The most disadvantaged and underprivileged households were selected for receiving the PPCs. To further strengthen the pre-existing mitigation measure for reducing HWC, 1000 fodder saplings of Neipiyer grass, dally grass and fruits and lemons saplings were provided to local communities in the surrounding areas of the forest, with the aim of reducing the communities' dependence on forest resources, therefore decreasing the likelihood of HWC incidents.





*Figure 10: Goat shed before and after PPC.*

**Key achievements of this project:** *(Please give a bullet point list of key measurable outputs- for example xxx of staff trained in SMART monitoring techniques, xxx camera traps covering xxx km<sup>2</sup>)*

**Key achievements:**

- Capacity building training delivered to 102 key stakeholders, including park authorities and local communities on tiger conservation, HTC, mitigation methods.
- 27 frontline staffs trained in regular hotspot and dispersal monitoring of tigers, including the installation of 1 digital display in the park.
- Awareness raising activities completed, including:
  - o Upgrades implemented to PNP visitor centre.
  - o 5 double sided information boards (10 sides of information) installed along the east west highway passing through PNP.
  - o PNP website upgraded.
  - o 2 hoarding boards on tiger conservation installed in front of park and ranger station.
- Human and wildlife coexistence promoted by:
- 30 vulnerable HHs supported to build PPCs for protecting livestock against carnivore predation.
- 1000 fodder saplings to distributed to 100 vulnerable HHs to reduce their dependence on forest resources within the Buffer Zone and National Park.

**Obstacles to success:** Give details of any obstacles/challenges to success that the project has encountered. *(Any changes to the project that have affected the budget and timetable of project activities should have been discussed prior to the end of the project)*

The torrential rainfall occurring during the early monsoon season inhibited the delivery of activities within the projected timeline, but all activities were completed within the project timeframe.

**Monitoring and Evaluation:** *(Describe the methods used to monitor and evaluate the progress of the project)*

All monitoring and evaluation under the project was completed by the ZSL staff member responsible leading the implementation of this project. In addition to the ZSL project leader, the previously formed PMU of PNP, comprised of the Chief Conservation Officer (CCO) of the park, Divisional Forest Officer, representatives from NTNC, ZSL and community leaders as members, undertook monitoring and evaluation of the impacts of the project. Centrally, the PCC also monitored the implemented activities of the project; the PCC is the central level body with the Deputy Director General of DNPWC as chairperson, section heads of DNPWC and ZSL (CR/DCR) as members. Monitoring and evaluation activities involved field visits, data collection on HTC incidences habitat management, project progress reviews and information exchanges between all stakeholders involved.

**Shared learning:** *(How will you share the outputs and learning from your project, in what format and with whom?)*

Internally, ZSL maintains an online database accessible to all staff hosting project reports and outputs. Externally, all project outputs have been shared and presented in internal ZSL knowledge sharing

meetings, and also in external sharing meetings, workshops and programmes ZSL participants in with other conservation stakeholders.

Information will be disseminated further afield through associated organisations, such as the relevant IUCN specialist groups, other conservation and development agencies working in Nepal, and at related events held at ZSL's London headquarters. Data will be shared to feed into global conservation initiatives such as the Living Planet Index, as well as national needs, such as the regular reporting to the Convention on Biological Diversity CBD. Information regarding the project will be shared with DNPWC – the focal government body for wildlife conservation in Nepal, through the PCC.

**Media:** *(Please provide a list of publications and media both local and national which mentions the work funded by this project and/or mentions Wild Cats Conservation Alliance)*

**Have you provided at least 2 blogs? Y/N? Yes**

- “How rewilding has helped reduce Human Tiger Conflict and sustain increasing tiger population in PNP”
- “Human-Tiger Coexistence in Parsa National Park”

**Have you provided at least 10 high quality images with details of the relevant credit? Y/N?**

<b>Section III. Appendix</b> (Please populate this section with details from section II)	
<b>Did you carry out camera trapping as part of this project? Y/N</b>	
Yes	
<b>If yes:</b>	
<b>Total camera trap nights/days:</b> >2,000 trap days	<b>Total area surveyed:</b> 300 Km <sup>2</sup>
<b>Numbers of tiger/leopard/prey recorded:</b> Total of 25 mammals with 3 individual tigers identified and recorded along with 3 leopards and other prey species.	<b>Have you included data on other species recorded?</b>
	Yes
<b>Did you carry out patrolling as part of this project? Y/N</b>	
No	
<b>If yes:</b>	
<b>Total distance patrolled:</b> N/a	<b>Total area patrolled:</b> N/a
<b>Do you use Patrol Monitoring software such as SMART? Y/N</b>	
N	



<b>If yes: N/a</b>  <b>Total distance patrolled using patrol monitoring software?</b>		<b>How do you collect data? Handheld devices/paper/other? Please give details. N/a</b>
<b>Does your project work with local communities? Y/N</b>  Y		
<b>If yes: (please be as specific as possible)</b>  Surrounding communities (Lokhit, Aadhavar, Manohari) located around the Northern Buffer Zone of PNP	<b>What did you do?</b>  Capacity building and raising awareness on conservation and mitigation for HWC.  Construction of PPC's for vulnerable households  Distribution of fodder sapplings for vulnerable households	<b>How many people did you reach?</b>  100HH as direct beneficiaries and <15000 beneficiaries reached with targeted awareness campaign.  30 vulnerable HHs supported to construct PPCs.  100 vulnerable HHs provided with fodder saplings to reduce dependency upon forest resources.  All conflict mitigation activities included 100HHs or 465 Individuals (National Census Survey, 2021, GON)

<b>How do you measure the success of this activity?</b>  The success measurement of these activities was done through community visit and interaction with the community which reflected increased awareness on tiger conservation, HWC and mitigation measures along with reduced HWC incident in the project area.		
<b>Did you carry out educational activities with adults or children? Y/N</b>  No		
<b>If yes: N/a</b>  <b>Who?</b>	<b>What did you do?</b>	<b>How many people reached?</b>
<b>Have you seen behaviour change from these activities? (Please give details of how this is measured)</b>		
<b>Did you carry out training activities for any staff/community member on the project? Y/N</b>  Yes		
<b>If yes: (please be as specific as possible)</b>  Park officials, local communities, front line respondents and other key stakeholders	<b>What did you do?</b>	<b>How many staff trained? How many others trained?</b>

	Provide three 2 days training on tiger conservation, HTC and its mitigation.	102
<b>How do you measure the effectiveness of this training?</b> A pre and post training survey were conducted to reflect the knowledge on the trained subject.		
<b>Did you carry out conflict mitigation activities with community members?</b> Yes		
<b>If yes:</b>  <b>Who?</b> Local communities in Adhavar, Manohari and Lokhit BZ communities.	<b>What?</b> In addition to the mass awareness raising campaign, training on tiger conservation, HWC and mitigation measures, local communities were supported in pre-empted conflict mitigation measures with support on installation of PPC and distribution of 1000 fodder plants saplings.	<b>How many people did this include?</b> Excluding indirect beneficiaries from awareness and trainings, conflict mitigation activities included 100HHs or 465 Individuals (National Census Survey, 2021, GON)
<b>Have you seen behaviour change from these activities? (Please give details of how this is measured)</b>		
Yes, behaviour change has resulted in decreased HWC in project intervention sites; HWC incidents decreased by more than 35% in project locations. Also, local community members are less dependent on the forest for resources, and people working and visit forests in a team, whereas prior to the project visits to		

forests were often made individually, resulting in a greater likelihood of HWC. People are also more informed around tiger behaviour in the project intervention site, and have adapted their daily behaviours accordingly.

**Were any scientific papers/articles published because of your project? Y/N**

No. However, data collected through the project has been used to publish a paper with ZSL Nepal Deputy CR Dr. Bhagawan Raj Dahal as lead author.

**If so, please give details or provide copies.**

Setting recovery targets for a charismatic species in an iconic protected area complex: The case of tigers (*Panthera tigris*) in Chitwan–Parsa National Parks, Nepal (DOI: <https://doi.org/10.1111/csp2.12930>)