WildCats final (end of year) report template

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

Project Title: Strengthening institutional capacity and collaboration for tiger conservation

Grantee Organisation: The Zoological Society of London

Location of project: Southern and eastern part of PNP and its buffer zone, adjoining national, collaborative and community forests (27.250N, 84.850E)

Size of project area (if appropriate): 535 Sq. Km (approx.)	No of tigers and / or Amur leopards in project area, giving evidence & source: 41 (95% CI = 38-50) estimated tigers in PNP and adjoining forest (DNPWC and DFSC, 2022)

Partners: *(Please give details of partners, including communities, academic institutions etc. for this project.*

Department of National Parks and Wildlife Conservation (DNPWC)

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 PAs including the buffer zones. ZSL has a working MoU with DNPWC since 2014 renewed for five years in 2019 and has a very good professional relationship. Through DNPWC it also has a close working relationship with the PA managers at PNP. The DNPWC, through Programme Coordination Committee (PCC) facilitates implementation of the project activities and is responsible for overall monitoring and evaluation of the project. This is based on a monitoring mechanism established under the project. The proposed project has been formulated under the guidance of DNPWC and the required permission has been obtained.

Parsa National Park (PNP)

In 1984 PNP was designated a wildlife reserve, with the primary aim of preserving the wild Asian elephant and their remaining habitat as well as 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 and Valmiki Tiger Reserve in India. It 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, will facilitate and implement the project activities. The members of the PMU are responsible for coordination, facilitating project activities, monitoring progress, and reporting to the PCC.

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

Bhagawan Raj Dahal

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Reporting period: 1 February 2023 to 31 January 2024

Please ensure that your report relates to the objectives and activities detailed in your proposal and logframe. 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?*)

The project focused on the southern part of the Parsa National Park which is contiguous to the adjoining divisional forest area of Bara district. Through this project, collaboration between the Divisional Forest Office (DFO) and Park authorities was strengthened on tiger conservation which was crucial to conservation of tigers moving from the source (PNP) to the adjoining forest. Additionally, threats to the tigers and prey base were identified and reduced through the deployment of GSM enabled camera technology in the core tiger

habitat. Further, the technology was transferred to the park authorities for long-term sustainability of the technology even after the project completion.

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

The project was a resounding success from the view of collaboration of DFO and park authority including the Nepal army for the conservation of tiger and its prey base that move from the source to adjoining forest. The project also contributed to increased understanding of local people on tiger behaviour and movement patterns. Additionally, the real-time monitoring of problem tigers in the vicinity of settlements through GSM enabled camera technology was identified as a novel tool for minimizing the serious human tiger conflict.

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

In order to increase awareness among local people, five community level awareness raising workshops were held, engaging 304 participants. The findings of the National Tiger Survey 2022 were shared, as well as information about their population movement patterns, and a discussion on possible human tiger coexistence strategies was had. One workshop was shared with key stakeholders including the PNP authorities, Nepal Army, representatives of BZUCs, and another workshop was organized for the representatives of DFO, BZUC, CBAPU, local community etc. In order to improve collaboration, two meetings attended by 39 participants, and 7 informal meetings between park authority and security personnel were organized to demonstrate the use and effectiveness of SpyCamera technology in conservation, and the benefits of establishing a red alert system in the presence of PNP managers and Nepal Army.

In order to strengthen the capacity of the NP to control illegal wildlife activity, one training session was held for 18 frontline staff and one refresher training for 22 frontline staffs on the use of SpyCam technology. After the deployment of SpyCam in the field, a training session for 11 frontline staff was conducted on the identification of red alert, storage of images, database management, and analysis of photo information. Following the training, regular deployment of 20 SpyCameras in the strategic locations identified was completed. As a result, the rapid response team have successfully arrested offenders for illegal logging and poaching activities in the restricted zone.

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, #people trained or #people attending meetings/workshops or refer to figures in your tables below*)

Output 1: Improved collaboration between multi-conservation stakeholders through regular engagement meetings and, information sharing underpinned by awareness raising for wider communities promotes tiger conservation in the region.

Activity 1.1: Conduct workshop among PNP, DFO, BZUCs, CFUG to build support for tiger conservation and minimizing human-tiger conflicts

A day long tiger conservation workshop was held at Adhabhar, Parsa district engaging various stakeholders including the Chief Conservation Officer (CCO) and key staff of Parsa National Park, the Nepal army, representatives of BZUCs, NTNC and MWT. The main objectives of the workshop were to share the major findings of National Tiger Survey 2022 and tiger dispersal patterns in 2013, 2018, and 2022, as well as promoting human tiger coexistence through tiger-based tourism opportunities. A total of 38 participants actively took part in the workshop. After the presentation session, an open discussion session was conducted.

Figure 1: Dr Ashok Kumar Ram, CCO, PNP delivering his speech in the program

Figure 2: ZSL Nepal staff giving presentation in the program

Figure 3: A group photo of the workshop participants

In the closing session, the CCO emphasized the strategies to proactively deal with possible human tiger interactions, and the chairman of the BZMC focused on the role of local people in tiger conservation as well as engagement in maintaining coexistence.

Activity 1.2: Conduct meeting with conservation stakeholders to share the result of GSM enabled surveillance cameras and threats encountered

Two informal meeting were held with concerned authorities and stakeholders to promote collective law enforcement efforts in Parsa National Park. During the meeting, data collected from covertly deployed spy cameras in various strategic locations was shared among PNP staff stationed at various parts of the park and among Nepali army officers in-charge of respective posts.

Despite the limited number of spy cameras, the meeting concluded with a decision to identify strategic locations for installing GSM-enabled cameras in the core area and buffer zone areas based on information received from regular real-time patrols, informants, and community user groups, and to deploy the cameras accordingly based on priorities. Once the cameras are installed, the post commander closest to the location of the installed camera will be notified of its location so that if the camera detects any intruders, the rapid response command centre at park headquarters can notify the post commander to respond as soon as possible.

The meeting was attended by 39 participants including 16 from the Nepali army and 23 from the National Park.

Figure 4: Staff elaborating on the meeting's main goal

Figure 5: Lt. Colonel suggesting strategies for installing spy cameras.

Activity 1.3: Conduct routine informal meetings with Nepali Army units

A total of 7 informal meetings were conducted during the project period where images from spy cameras were shared with the Park authority and Nepali Army. The meetings were regularly organized by the PNP with the main objective of creating a platform for the Park Manager, Battalion Commander of Nepal Army, key staff of the park and other representatives from the Nepali Army to discuss strategies to protect biodiversity. During the initial meeting, the staff were briefed on camera mechanisms, received hands-on demonstrations of camera features, and discussed the implementation of a red alert system. In the subsequent meetings, red alerts were shared, containing images of poachers and illegal loggers, and sensitive locations prone to illegal wildlife activities were identified. This initiative aimed to improve overall wildlife crime prevention within the National Park, underscored the significance of timely information sharing, and emphasized the necessity of collaborative efforts to address identified challenges. Additionally, the importance of robust planning was strongly highlighted.

Activity 1.4: Engage university students and citizen scientists on tiger conservation

A total of 3 conservation awareness sessions for the university students and citizen scientists were delivered. In one session, a presentation on tiger conservation, the increasing trends of tiger numbers, and the accompanying human wildlife conflict in Nepal was delivered. The primary goal of this program is to motivate and inspire aspiring conservationists to strive toward tiger

conservation and human-tiger coexistence. 148 BSc level students from Institute of Forestry, TU, Agriculture and Forest University, and Kathmandu Forestry College were provided with awareness sessions on 3 different occasions.

Figure 6: Staff delivering briefing to students

Figure 7: Staff demonstrating camera trap

Figure 8: Staff delivering presentation at university

Figure 9: Staff delivering presentation at PNP

Activity 1.5: Aware local communities on increasing tiger and its conservation need

Five awareness-raising sessions were held during the project period. A well-designed presentation about tiger conservation and its importance to a healthy ecosystem was delivered. One of the primary objectives of the initiative was to educate individuals about the findings of the 2022 National Tiger Survey conducted by DNPWC. During the program, the tiger population residing in Parsa National Park and its adjacent forest areas was showcased to the local communities. A significant emphasis was placed on disseminating information regarding the survey. Attendees, which included members of the local

community, were provided with detailed data on the tiger population found in Parsa National Park and the surrounding forest regions.

Throughout the events, 304 participants representing the Divisional Forest Office (DFO) Parsa, DFO Bara, PNP officials, BZUCs, Community Forest user's group etc. were involved.

Figure 10: Staff presenting on NTS 2022 data and pattern of tiger movement

Figure 11: Conservation Officer presenting on the importance of tiger conservation

Figure 12: Staff presenting on Tiger conservation

Figure 13: Staff presenting at Gadimai collaborative forest

Output 2: Strengthened institutional capacity for effective wildlife law enforcement supports in the reduction of illegal human activities in the project sites.

Activity 2.1 Train PNP staff on setup and deployment of GSM enabled surveillance cameras

With the wildlife population on the rise in PNP, the risk of illegal poaching and logging within the NP has also escalated. Despite the dedicated efforts of law enforcement officers who regularly patrol the area to maintain control,

clandestine illegal activities can still occur beyond their surveillance. The inability to monitor every corner of the NP consistently through patrols underscores the need for enhanced technological support to combat illegal wildlife activities. The introduction of GSM-enabled camera technology by ZSL Nepal (which has been successfully implemented in western Terai PAs), highlights the urgency of adopting such technology to address these challenges effectively.

During the reporting period a two-day training course (attended by 18 individuals) and a one-day refresher training (attended by 22 individuals) on the setup and deployment of GSM enabled cameras was delivered. In the sessions participants were provided with the theoretical knowledge about the camera's working mechanism i.e., PIR zone, trigger, and day and night capture, email setup, camera setup on desktop and in the field. After the theoretical session, the participants took part in a practical session which demonstrated camera deployment in the field, the use of camouflage, field of view settings, use of GPS, and field book entry. Finally, photo check in email and record of basic information e.g., number of intruders, activity, time of intrusion was demonstrated.

Figure 14: staff instructing trainees on the installation and use of poacher cameras

Figure 15: Battalion commander delivering a speech emphasizing the value of using technology in conservation

Figure 16: participant handling the SpyCam

Figure 17: Reorienting participants before having them try installing the camera in the field
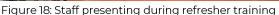
Figure 18: Staff presenting during refresher training

Figure 19: camera deployment demonstrated on field

Activity 2.2: Provide training to response units to manage data of GSM enabled surveillance cameras

When GSM enabled surveillance cameras are in the field it is very important to identify the red alert and keep the record of information extracted from the images emailed by the cameras. In order to do this, a one-day training course for 11 members of staff from PNP was delivered through this project. The chosen participants were members of the Rapid Response Team who were detailed with reinforcing the outpost team to take action against illegal wildlife activities. The training was divided into three sessions; the opening session, a presentation session on red alert identification and rapid response, record keeping and analysis, and a closing session. In the first session, the CCO of PNP delivered an opening speech highlighting the importance of rapid response and database management. While in the presentation session, participants were provided with information about record keeping (e.g. camera detail, deployment date, deployment place, nearest post, cellular balance status, battery status, phone number and email associated with the camera system etc.), maintaining a database of monthly data (number of types of images sent by cameras, type of information on intruder, day, and date, etc.), maintaining a database of wildlife images, and analysis of the photo information. In the closing session, the CCO of PNP ended with vote of thanks to WildCats Conservation Alliance and instructed the staff to continue a rapid response to red alerts and maintain the database. After the completion of the training, the PNP was given two logbooks for record keeping as illustrated in the training.

Figure 20: Staff presenting on camera information database

Figure 21: Photo of participants including CCO of PNP

Activity 2.3: Install 20 GSM enabled surveillance cameras in vulnerable locations throughout the year for real time monitoring to reduce tiger threats

The project supported PNP in the deployment of 20 GSM enabled cameras to control illegal wildlife activities inside the park. These cameras are covertly deployed in the core areas where illegal wildlife activities could take place. Before the deployment a meeting was conducted in the JOC (Joint Operation Cell) to identify strategic locations. The locations to deploy the cameras were chosen based on patrol reports and information obtained from park informants. Cameras were then setup in the JOC by the park ranger. During the setup process the camera settings are selected with the correct number of photos to take, sensitivity of the trigger, GPRS network detail, and image sender and receiver email detail. Finally, a dedicated team (also rapid response team including the park staff and Nepali army) deploy the cameras in the identified locations. The same team has the access to the email and can respond to images sent by the cameras.

Success from SpyCam

Case I

In May, using information obtained from covertly installed spy cameras in one of the PNP's most sensitive areas for poaching and illegal logging, the park and Nepal army staff collaborated on an operation that resulted in the capture of one bicycle and timber that was about to be taken by illegal loggers from the PNP's core area. As a result, park authorities have increased patrol actions in such areas to combat illicit wildlife poaching and logging.

Figure 22: Intruders hauling timbers on their bicycle illegally from the park's core area

Figure 23: The park conducted an operation in coordination with the Nepal Army in the location

Case II

In June, a photo was emailed by a camera showing a poacher carrying a deceased monitor lizard. The rapid response team responded to the red alert and the poacher with the kill was arrested within 1 hour. It was again one of the major accomplishments made possible solely by the real-time information acquired from the deployed spy camera. The arrested person is being held by park authorities for additional investigation into the offense.

Figure 24: Poacher carrying monitor lizard

Figure 25: Poacher arrested with the kill (left), monitor lizard buried by the authority (right)

Case III

In August 2023, a SpyCam sent information capturing an illegal logger going out from the restricted area of park with timber. The team in JOC responded to the red alert and moved to the location and started a search operation which resulted in the arrest of 3 loggers.

Figure 26: Intruders hauling timbers on their bicycle illegally from the park's core area

Figure 27: The illegal log traffickers who were caught using real time information with the help of spy camera

Activity 2.4: Provide equipment and field gears for rapid response team

In order to enhance operational efficiency within the JOC of Parsa National Park and the Nepali Army, a full set of desktop computers along with 2 GB hard drives was handed over. This marks an innovative step towards improving management of data obtained from GSM-enabled spy cameras. First aid medical kits were provided to the Nepali Army deployed in Parsa National Park. These kits contain all the necessary medical supplies required by both the Nepali Army and national park officials. The medical items provided were prescribed by the Nepali Army medical staff, tailored to the needs of the patrol teams primarily operating within the national park. Additionally, 35 search lights and 3 sets of tents were also handed over to the park. The tents will be used during the long-range patrol and the search lights will be used for the night patrols. The handover ceremony took place in the presence of Mr. Ramchandra Khatiwada, Senior Conservation Officer of Parsa National Park, and Lt. Colonel Ganesh Raj Panth, representing Shree Sabuj Gan.

Figure 28: Staff handing over first aid kit   Figure 29: staff handing over the desktop PC

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 km²*)

- 3 sharing meetings were conducted engaging 77 representatives of conservation stakeholders including the park authority, divisional forest office staff, and community leaders regarding tiger dispersal patterns and GSM enabled camera deployment.

- 7 workshops were conducted in the park authority and security personnel were trained in effective deployment of GSM enabled cameras and identification of strategic locations for the control of illegal wildlife activities inside the restricted area. In addition, the use of GSM cameras for real-time monitoring of problematic tigers was discussed.

- 8 awareness sessions engaging 452 participants (including 3 sessions for 148 university students and 5 sessions for 304 community members and citizen scientists) were conducted where the resource person shared the major findings of the National Tiger Survey 2022 and tiger movement patterns.

- 40 responsible conservation authority personnel were trained on the setup and deployment of GSM enabled cameras for the control of illegal wildlife activities in the restricted areas.

- 11 conservation authority personnel dedicated to observation and response of real-time monitoring technology were trained on identifying red alerts and rapid response mechanisms, which led to timely deterrent of illegal wildlife activities.

- 20 GSM enabled cameras were regularly deployed in the strategic locations inside the PNP restricted areas, resulting in the apprehension of 4 trespassers in the restricted wildlife core habitat inside the PNP.

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*)

N/A

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

Two joint monitoring visits with attendees including Park authorities, ZSL Field staff and Project lead were conducted to observe the effectiveness and monitor the progress against the indicators. During the monitoring, persisting challenges were also discussed with the park authorities and solutions were also identified. Similarly, opportunities of leveraging the activities were also identified which further increased the ownership of the park.

Figure 30: Staff monitoring project supported JOC in PNP

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

Sharing of the outputs and project learning was done through workshops and meetings in the form of PowerPoint presentations with the park authority and DFO where the concerned stakeholders got to know about the tiger movement patterns, effectiveness of GSM enabled cameras for minimizing threats, and real-

time monitoring of problem tigers which helped authorities to make the local community aware of tiger presence in the vicinity.

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

One blog highlighting the recovery water sources and of tiger number in PNP was published in WildCats website. (Please refer to the following link)

https://conservewildcats.org/2023/08/04/parsa-national-park/

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

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

Y

Section III. Appendix (Please populate this section with details from section II)	
Did you carry out camera trapping as part of this project? Y/N No (the project has no output in terms of camera trapping rather deployment of 20 GSM enabled cameras in strategic locations throughout the project period was done to minimize the threats)	
If yes: Total camera trap nights/days:	Total area surveyed:
Numbers of tiger/leopard/prey recorded	Please include data on other species recorded
Are numbers of tigers/leopards/prey increasing or decreasing in your project area? Please show trends	
Did you carry out other surveys? Y/N No	
If yes: Please give details	

Did you carry out patrolling as part of this project? Y/N	
No (through the project no direct support for patrolling was done, rather movement of park authority for the deployment of GSM enabled cameras at strategic locations was supported)	
If yes: Total distance patrolled: (Please give figures for different methods, vehicle/foot/boat etc)	Total area patrolled:
Do you use Patrol Monitoring software such as SMART? Y/N No (the Park already has Real-Time SMART software, but it was not used/supported by the project however the project supported to establish GSM camera log file and database management system which is placed in Joint Operation Cell of the Park)	
If yes: Total distance patrolled using patrol monitoring software?	How do you collect data? Handheld devices/paper/other? Please give details?
Please provide comparison data on from your patrolling over time	

Please provide data on violations recorded/arrests/successful prosecutions	The deployed GSM-enabled cameras recorded (and staff were able to respond to) a total of 3 events of trespassing, while 4 trespassers in two events were arrested.

Does your project work with local communities? Y/N

Yes

If yes: (please be as specific as possible and include gender split) Who? Residents of Buffer Zone of Parsa National Park Female: 97 (32%) Male: 207 (68%)	What did you do? Was it successful? Awareness raising sessions were conducted for increasing the understanding of tiger movement and possible HTC based on National Tiger survey report 2022. The activity was found successful on raising the awareness of local people.	How many people did you reach? A total of 304 community people were reached.

How do you measure the success of this activity?

The success of the activity was measured through pre and post activity assessments where 10 questions related to the sessions were asked before the session started and the same 10 questions were asked after the completion of the activity and the difference (increase in the scores) were assessed.

Did you carry out educational activities with adults or children? Y/N

Yes

If yes: (please be as specific as possible and include gender and numbers) **Who?** University students Female: 59 (40%) Male: 89 (60%)	**What did you do?** Presented on tiger and prey base numbers in in Nepal, movement patterns, and possible gaps in tiger conservation based on the findings of the National Tiger Survey 2022 were shared for arousing research interest of the students in tiger conservation.	**How many people reached?** 148

Have you seen behaviour change from these activities? (Please give details of your results and of how this is measured)

The level of understanding of tiger and prey base numbers, how the numbers get estimated, and gaps in tiger conservation among the students increased (this was measured via pre and post-test assessment scores).		
<td colspan="3" style="background:#d6e8c0"></td>		
Did you carry out training activities for any staff/community member on the project? Y/N		
If yes: (please be as specific as possible and include gender split) Who? National Park Staffs Female: 8 (20%) Male: 32 (80%)	What did you do? Was it effective? Delivered theoretical background about camera operation mechanism, hands on practical session on camera setup, and field demonstration on camera deployment. The training successfully helped staffs on setup and deployment of cameras.	How many staff trained? How many others trained? 40 staff
How do you measure the effectiveness of this training?		
<td colspan="3" style="background:#d6e8c0"></td>		
Did you carry out conflict mitigation activities with community members?		
If yes:		

Who?	What?	How many people did this include?
National Park staff and ZSL staff	Raise the community awareness of the behaviour of wildlife including tigers and their movement patterns. Deployed GSM cameras for monitoring of problem tigers in the vicinity of settlement.	12 Park staffs and 2 ZSL staffs

Have you seen behaviour change from these activities? (Please give details of your results and how this is measured)

Yes, after these activities, an increase in positive attitude towards tiger conservation and park authority was experienced.

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

No

If so, please give details or provide copies.