# Securing the future of Nepal's tigers



## Strengthening tiger protection and monitoring in Parsa National Park

Interim Report submitted to Wild Cats Conservation Alliance

## Reporting Period: Six months (February 1- July 31, 2018)

(By prior agreement the project has supported the Parsa National Park extension area component of the National Tiger and Prey Base Survey, which began in November 2017. This report therefore covers this period of the survey although it falls outside the above dates.)

## **Zoological Society of London Nepal Office**







#### **Report Preparation Team**

- Ashok Kumar Ram, Birendra Kandel and Hari Bhadra Acharya contributed on behalf of the Parsa National Park.
- Tek Raj Bhatt, Prakash Sigdel, Sailendra Raj Giri, Pradeep Raj Joshi, Bhogendra Rayamajhi, Bhagawan Raj Dahal, Hem Sagar Baral, Jake Williams on behalf of ZSL.



Tiger Photo Credits: DNPWC/NTNC/Panthera/ZSL

#### **Progress Summary**

The majority of the work under this project has been completed. The national Tiger Survey led by DNPWC has been completed. The survey covered all tiger bearing protected areas including the extension area of Parsa National Park, our current project site, as well as corridors and tiger habitats outside the PA. An occupancy survey has been completed east of the extension area as far as the Bagmati River to monitor potential dispersal of tigers. The results from the survey are being analysed by DNPWC. Similarly, SMART refresher training has been provided to the Nepal army and park staff deployed in the extension area. SMART patrols in the extension area are ongoing. A two-day training course on the use of android based hand-held devices for SMART data collection has been completed. Regular coordination with Parsa National Park has been maintained for effective implementation and ownership of the project activities.



## **Project Background**

Globally, tiger numbers have declined by 95% compared to the beginning of the 20<sup>th</sup> century and their habitat is restricted to only 7% of its original extent. To ensure that tigers continue to thrive in the wild a global conservation effort is needed. As part of ZSL's tiger conservation programme, we are supporting the Government of Nepal to achieve its commitment to double tiger numbers by 2022 (i.e. to reach 250 tigers, based on 2010 national estimates of 125 tigers). Nepal is currently on track to meet this goal, with a high level of commitment to tiger conservation by the Government of Nepal and increasing support from local communities living close to tiger bearing protected areas (PAs).

Parsa National Park (PNP) is a key tiger recovery site identified by the Government of Nepal and ZSL's flagship tiger conservation site. PNP together with Chitwan National Park (CNP), forms an important landscape for biodiversity conservation, and supports the largest population of threatened megafauna such as tigers, rhinos and elephants in Nepal. On 3 June 2017, the Department of National Parks and Wildlife Conservation (DNPWC) upgraded Parsa to the status of a National Park on account of its significantly improved habitat, stringent law enforcement and annual biological monitoring efforts which have contributed to the recovery of tigers as well as other wildlife.

ZSL facilitated the extension of PNP, adding an additional 129 km<sup>2</sup> of tiger habitat by the national government in 2015. The two previous 21<sup>st</sup> Century Tiger grants provided valuable support in this regard. The projects were extremely successful, providing baseline data on the tiger population in the extension area and mobilising Community-Based Anti-Poaching Units (CBAPUs). In 2016/17, annual camera trapping survey revealed a dramatic increase in the tiger population and the increased use of the extension area by tigers. Law enforcement was strengthened by supporting PNP to implement patrol-based monitoring using the SMART approach in the extension area. Continuing to monitor the movement of tigers beyond PNP was identified critical to ensure effective management interventions and protection for tigers dispersing east of the extension area.

The biological monitoring was proposed in this project to support the Government's national tiger census planned for 2018 in PNP, contribute towards their efforts to estimate the tiger population across its tiger-bearing protected areas and provide crucial information on progress toward achieving Nepal's national target of doubling its tiger numbers by 2022. In addition, the project also included an investigation of possible tiger dispersal eastwards from PNP, enabling the Government of Nepal to design effective conservation measures to protect dispersing tigers and allow the population to continue to thrive and expand its range.

Another major component of the project was to support and strengthen SMART data collection by providing training and resources to the patrol teams, as well as introduce android-based SMART data collection which removes the need for manual data entry and allow reports to be generated immediately providing prompt information to the PA manager and facilitating rapid responses. Key progress made on specific objectives as outlined in the proposal is provided in sections below.

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Figure 1: Map of Parsa National Park within Nepal's protected area network

#### **Project Objectives:**

The project was developed to build on the success achieved with previous grants from 21<sup>st</sup> Century Tiger in supporting PNP to secure the extended core as key tiger habitat by reinforcing the existing measures for biological monitoring and law enforcement. Specifically, the project aims to achieve the following two objectives:

- Continued monitoring of the status of tigers and their prey in the extension area of PNP through systematic camera trapping and transect surveys as part of the national tiger census.
- 2) Reduce poaching threats to tigers by strengthening anti-poaching measures in PNP through refresher SMART training, supporting patrolling and trialling android-based SMART patrolling.



## **Project progress**

#### 1. Annual monitoring of tiger and prey base

One of the specific objectives of this grant was to support the national tiger and prey base survey 2018 led by the Government of Nepal to establish the nation-wide tiger population. The survey, completed between November 2017- March 2018, will estimate tiger population in Nepal.

As a part of the survey, camera trapping in the Parsa-Chitwan Complex, Bardia-Banke Complex and Shuklaphanta Laljhadi-Jogbuda Complex was completed. Coordination meetings were held before the start of the national survey. The Ecology section of the Department of National Parks and Wildlife Conservation (DNPWC) led the national tiger survey with support from conservation partners National Trust for Nature Conservation (NTNC), ZSL and World Wildlife Fund (WWF). The survey covered the five tiger-bearing protected areas of Nepal; Parsa, Chitwan, Banke, Bardia and Shuklaphanta National Parks, their buffer zones and key corridors and areas outside them within the Terai Arc Landscape (TAL). This project specifically contributed to the tiger monitoring work within PNP.

#### 1.1 Coordination meetings

Field level and district level coordination meetings between the stakeholders have been conducted multiple times in the Parsa-Chitwan Complex.

#### 1.2 Orientation training

A two-day long orientation training course was organized at Sauraha, CNP to train the field survey team in the survey protocol. More than 100 people participated in the training before going into the field. Deputy Director Generals of DNPWC, Mr. Gopal Prakash Bhattarai and Mr. Sher Singh Thagunna were present at the orientation training.

#### 1.3 Camera trap inauguration

The camera trap field survey was inaugurated by the Secretary of the Ministry of Forests and Environment (MoFE) Dr. Yubak Dhoj GC at PNP by turning on a pair of camera traps after an event organized at the protected area headquarters, Aadhabhar. Senior staff from the conservation partners were present at the inauguration including: the Head of the Biodiversity Division of MoFE, Director Generals of DNPWC and the Department of Forests (DOF), Senior officials from the District Forest Offices, Chief wardens from protected areas, and heads or representatives of NTNC, WWF Nepal, ZSL Nepal, and the USAID-Hariyo Ban Program.





Figure 2: Participants of orientation training at NTNC-BCC, Sauraha, CNP



Figure 3: Inauguration of the camera trapping survey



#### 1.4 Field Survey

The field survey began on 30 November 2017 after the inauguration at PNP headquarters. The entire Parsa-Chitwan complex was surveyed in three deployments. Fourteen teams including 6-8 persons in each were mobilized in the field.



Figure 4: Survey grid of Parsa-Chitwan complex

#### 1.5 Camera Deployment

The first deployment started on 1st December after inauguration of the camera trapping on 30 November 2017. A total of 14 teams were deployed from 12 camp locations to cover 274 grid cells in PNP, including 49 grid cells of the extended core area, and surrounding areas and some of CNP. Teams based at Panighat and Amlekhgunj deployed cameras in the grid cells of the extension area.





Figure 5: Locations of camps and area covered in first deployment

#### 1.6 Database management

The field data obtained as data forms as well as camera trap data )photos( were compiled for analysis at the Biodiversity Conservation Center, CNP. Data analysis is being led by the ecology section of DNPWC with technical support from ZSL and other partners.

#### 1.7 Camera loss

Loss and damage of camera traps in the field was observed as a major challenge for the survey. During the survey 81 camera traps were lost or damaged (49 Panthera cameras and 32 Cuddeback). Of the 81 cameras lost/damaged, 57 were stolen or damaged by humans, 22 by elephants and 2 by tigers. In addition to these, 8 cameras taken away by people were recovered )either returned to the forest or given to police(, 3 cameras taken by tigers and 2 taken by elephants were also found working.





Figure 6: Camera loss records

#### 1.8 Preliminary data analysis

Tiger Images have been sorted and provided to DNWPC for individual identification and population estimation. Tigers recorded in previous surveys have also been recorded this year from PNP.

## 2. Conduct tiger presence reconnaissance survey along tiger corridor east of the extension zone of PNP

As part of the National Tiger Survey, an occupancy survey has been conducted in the forests east of PNP as far as the Bagmati River to investigate potential movement of tigers in this area. Grid cells of size 15kmx15km, as proposed in the National Tiger and Prey Base Monitoring protocol for Nepal, were used for the occupancy survey. The survey was carried out by the teams deployed for camera trapping. Data on tiger and prey signs, threats and human disturbance was collected for each occupancy survey grid cell. Data is being analysed by DNPWC and results will be published.

#### 3. Conduct refresher SMART training

The implementation of the SMART Approach has been ongoing in PNP since 2014. However, frequent changes to Nepal army and PNP staff in guard posts has required training to be repeated at regular intervals. (This regular staff turnover, with staff being redeployed to other protected areas, has however had the benefit of helping spread capacity in patrol-based monitoring across Nepal's protected area network.)

ZSL has been supporting PNP to train new staff and army units as well as provide refresher training and technical support as needed. Refresher training has been completed for army units and park staff at three guard posts in the extension area between 13–18 June 2018. A



total of 58 patrol staff (51 army personnel and 7 park staff) have been trained. A two-day training which included six sessions was delivered at each of the three posts. A total of 26 patrol staff (22 army staff, 4 game scouts) were trained at Shahajnath post, 21 staff (18 army staff, 3 game scouts) at Ratanpuri post, and 11 army staff at Dudhaura post in the extension area. Training sessions were facilitated by the Chief Conservation Officer of PNP, the Battalion Commander of *Tara Dal Battalion*-PNP, the Assistant Conservation Officer of PNP, the Monitoring and Surveillance Officer of ZSL Nepal and the Post Commander of each guard post. Details of the training sessions are provided below:

The schedule of the training sessions was almost the same for each guard post. The training consisted of a pre-training assessment, presentations on the session plan, individual GPS handling practices, field exercises for recording observations in log books and a post-training assessment after completion. A full description of the training conducted at Shahajnathpur post is given below as an example, the training conducted at Ratanpuri and Dudhaura posts, followed the same schedule (*Annex 1*).

#### Shahajnathpur Post Training - Day 1

The training started with the pre-training assessment. Each set consists of 10 questions and all questions asked were related to SMART and record keeping in log books. Participants had been previously engaged in SMART implementation, so this examination sought to understand their level of knowledge about SMART to inform the training provided.

Before starting technical sessions on SMART, a presentation titled: "Introduction about Parsa National Park and legal provisions on wildlife conservation and wildlife crime" was delivered by PNP's Chief Conservation Officer. He highlighted the vital role of protection units and law enforcement patrolling for anti-poaching as well as various law enforcement monitoring activities ongoing in the park, their impact and the legal provisions on wildlife conservation and crimes within the protected area. During this session he briefly explained the various conservation laws, rules and regulations within the national park and encouraged participants to actively implement the SMART approach.





Figure 7: Presentation by PNP's Chief Conservation Officer

In the second session the Battalion Commander from *Tara Dal Battalion* for PNP presented the role of the Nepal Army in conservation areas. The Nepal Army's contribution to wildlife conservation, law enforcement monitoring, and roles and responsibilities while safeguarding the site were included in the session. Besides this, he motivated the frontline staffs for active participation in site based anti-poaching surveillance activities.

The third session covered the introduction of SMART including data collection/entry, basic functionality, and report generation with different examples and summaries of their previous work and reports prepared. The necessity and effectiveness of SMART in law enforcement monitoring was clearly explained to participants along with the major roles required while conducting SMART patrolling.

The fourth session included lessons on data recording in patrol log books while patrolling and covered basic field crafts such as navigation and sign identification. Examples of various types of observation that need to be recorded, e.g. species name, group size, human signs, records of arrest or direct observation, weapons etc., were explained in detailed. Also, conservation issues in the extension area and interaction with such issues while patrolling were discussed during this session. At the end of the day, a question and answer session was held.

#### Shahajnathpur Post Training - Day 2

The second day of the training started with a review of the first day. Two participants (one each from the army and PNP) explained their understanding gained during the first day's training. After that, the first session began with a presentation on tracking wildlife, an



important element when implementing SMART, and an introduction to some aggressive animals and important safety measures. This session was facilitated by ZSL's Monitoring and Surveillance Officer.



Figure 8: Practicing observation recording

The second session, facilitated by the Assistant Conservation Officer of PNP, focused on legal procedures after arresting any intruders/unauthorized persons inside the protected area Details on the procedure for preparing reports on arrests, seizures, and other incidents that may occur while patrolling was taught.

The third session covered a module on GPS handling techniques including both theoretical and practical exercises. Firstly, a theoretical training was conducted on the use of GPS while patrolling such as waypoint marking, saving patrol tracks, and the functions of the different buttons on a GPS device. This was followed by a practical exercise with assistance provided by ZSL Nepal field technicians when needed. Questions related to navigation, GPS reading and data entry in GPS were answered by the trainer.





Figure 9: Participants practicing GPS handling



The fourth session included practical examples on log book filling, using GPS and recording observations. Participants were divided into different groups and each group practiced and demonstrated the entire process that is required while using SMART from the begging of a patrol to completing data submission.

Finally, the training ended with an interaction session for participants and a post-training assessment, covering the same questions as the pre-training assessment. The post-training assessments demonstrated an increased level of understanding of the SMART Approach and law enforcement monitoring.



Figure 10: Group photo after a training session.

#### 4. Support SMART patrolling

SMART implementation has been continued in the extension area through project support, as it requires optimum security enhancement and numerous law enforcement monitoring activities to keep the newly protected habitat intact for wildlife and protect tigers and other wildlife moving into this area. Patrol-based monitoring using the SMART Approach is being conducted from three guard posts in in the extension area.

SMART patrolling will no longer be conducted within the main area of PNP at the decision of the government, instead they will conduct patrol-based monitoring using their bespoke patrol-based monitoring tool. As highlighted in the project challenges (below) this will require that the project indicators around SMART patrolling be modified to reflect the restricted area of SMART implementation within PNP.

From the start of 2018 till 17 May 2018, a total of 504 patrols were conducted from the three posts, covering a total distance of 4,165km in 1,788 hours. Of the 504 patrols, 335 patrols were carried out on bicycle and 169 patrols were carried out on foot. Six incidents of



illegal human activity were recorded during this period. Direct as well as indirect signs of wildlife have been observed and recorded. Details on the patrols carried out by each guard post is presented in Table 1.

Table 1: Patrol conducted by guard posts									
S.N.	Guard Posts	No. of Patrols	Patrol Distance and Time						
			Distance	No. of hours					
1.	Dudhaura	166	1539	525					
2.	Ratanpuri	156	901	623					
3.	Sahajnath	182	1726	639					
	Total	504	4165	1788					

#### Patrol Effort and Coverage

The patrol effort map shows the coverage and intensity of patrols conducted in the extension area.



Figure 11: Map showing patrol effort and coverage in PNP extension area

#### Human Activity

- Total Observations = 6
- Direct = 5 groups mostly consisting of women and totalling 21 people were observed practicing grass cutting and dead fuelwood collection. All received verbal warnings.
- Indirect = 1 bicycle track, assumed to be for the purposes of logging and wood harvesting.



Table 3: Detail of human observations				
People - Direct Observation	5			
People - Indirect Observation	1			
Camp	0			
Cutting Tools	0			
Fishing Tools	0			
Transportation	1			
Timber	0			
NTFPs	0			
Domestic Animals	0			
Rocks and Minerals	0			



Figure 12: Map showing locations of illegal human activity location



Table 4: Direct Observation Details					
	S. N	People with Weapons and Gears	No of Observation		
s	1	Armed (Guns)	0		
gear	2	Unarmed	0		
vith s and	3	People with Fishing tool	0		
ple v apons	4	People with cutting tools (Khurpa, Khukuri)	2		
Peo wea	5	Status not Mentioned	0		
	S. N				
	1	Observed Only	0		
	2	Unsuccessful Pursuit	0		
aken	3	Arrested	0		
onta	4	Verbal Warning	5		
Acti	5	Written Warning	0		

Table 5: Indirect Observation Detail					
S. N	Type of Indirect Sign	No of observation			
1	Trail	0			
2	Footprint	0			
3	Cut marks	0			
4	Bicycle Tracks	1			
5	Fishing	0			
6	Litter	0			
7	Firewood Stumps	0			
8	Others	0			

#### 5. Trial android-based hand-held devices to record SMART data

A two-day training on the use of Cybertracker for SMART data collection has been completed for 16 park and Nepal army staff on July 27-28, 2018. Training was delivered by ZSL Nepal's Law Enforcement specialists. Classroom sessions on SMART and the use of android based hand-held devices for recording data were followed by practical exercises in the field. Six smartphones loaded with the Cybertracker application were provided to PNP for SMART data collection. A list of the participants is provided below. The next round of training is planned for October 2018.





Figure 13: Participants of android-based SMART data collection training



## **Key Achievements of the Project**

- 1) Tiger and prey base monitoring in the extension area of PNP completed as part of the national tiger and prey base survey.
- 2) Occupancy survey in the east of the extension area till Bagmati river completed to monitor potential tiger movement as part of the national tiger and prey base survey.
- 3) One out of two refresher trainings planned under this project are completed. 58 park and army personnel of 3 guard posts have been trained.
- 4) There has been a 44% increase in patrols carried out by 3 guard posts in the extension area (Baseline 70 patrols carried out in December 2017) and patrol effort has nearly doubled on average (94% increase from baseline of 430 km covered in December 2017).
- 5) 16 army and park staff have been trained in the use of Cybertracker for SMART data collection.
- 6) Equipment and logistical support has been provided to PNP to continue law enforcement patrols in the extension area to improve security for tigers.

## Key challenges faced by the project

- Tiger monitoring and occupancy surveys were carried out as part of the National Tiger and Prey Base Survey, which, as part of a national effort, took a significantly longer time for completion than a comparable site-based effort; and data analysis is still ongoing.
- 2) Engagement of park officials and Nepal army personnel in tiger monitoring delayed the planned trainings
- 3) Trainings had to be adjusted to accommodate changes to the army units deployed in the three guard posts in the extension area. Training had to be rescheduled a month and a half later to ensure training was provided to incoming units rather than outgoing units.
- 4) SMART is now being operated in the extension area (3 guard posts out of total 12 guard posts) and hence the project indicator for 200 patrols per month needs to be revised.



## Annexes

#### Annex I

## Training Schedule

Guard Post – Dudhaura (2 Days)							
Date:	13 <sup>th</sup> June						
Time	Activities	Facilitator					
9:15 – 9:30 A.M	Registration	ZSL					
9:30 – 9:45 A.M	Pre – Training Assessment	ZSL					
	Session I						
9:45 – 11:15	Presentation - Introduction about PNP and Legal provisions on wildlife conservation and wildlife	PNP					
	Crime Session II						
11.15 12.45	Brocontation Role of Nepel Army in Low	NA (Tara Dal					
11.15 - 12.45	Enforcement Monitoring at PNIP	Rattalion)					
12:45 1:20		Battanon					
12.45 - 1.50	Costion III						
1.20 2.00	Presentation Introduction on SMART	751					
1.50 - 5.00	conservation tools						
3:00 - 3:15	Break						
	Session IV						
3:15 – 4:15	Datasheets fill-up on patrol activities, observations	ZSL					
4:15 – 4:45	Brief and interaction on conservation issues at extension area of PNP	NA - Post Commander					
4:45 - 5:00	Interactions/QA sessions/Review of the day & Tea break	ZSL					
Date:	14 <sup>th</sup> June						
9:15 – 9:30 A.M	Registration	ZSL					
9:30 – 9:45 A.M	Review of I <sup>st</sup> Day	ZSL					
	Session I						
9:45 – 11:15	Presentation on tracking wildlife & introduction on some aggressive wildlife & safety measures	ZSL					
	Session II						
: 5 –  2:45	Presentation - Legal procedures after arresting intruders/unauthorized person	PNP					
12:45 – 1:30	Lunch Break						
Session III							
1:30 – 3:00	GPS Handling (Theoretical & Practical)	ZSL					
3:00 - 3:15	Break						
Session IV							
3:15 - 4:30	Practical sessions on SMART at field	SL					
4:30 - 4:45	Interactions/ QA sessions/Review of the day	ZSL					
4:45 – 5:00 Post - Training Assessment		ZSL					