LIVING ALONG THE CARNIVORES PROJECT

(MID-TERM REPORT)

The Rufford Foundation

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INTRODUCTION

Global tiger numbers are on the increase for the first time in 100 years stated a WWF report in 2017. Tiger population is increasing in India due to various conservation efforts, and the growth is significant because India is home to nearly 65% of all wild tigers in the world. The tiger reserve concentrated efforts allow tigers to successfully breed and raise young tigers in the relative safety of the reserves. With the increasing numbers, these wide-ranging carnivore requires new habitats to establish their territories but unfortunately, the protected areas are at their carrying capacity (Sharma *et al.,* 2013) and nearly 26.5% of all tigers in India continue to stay outside protected areas (Director GTF). Several factors are known to influence tiger use in areas outside PAs. Firstly, tigers have large home ranges, and sometimes their home ranges are larger than the size of the reserves. This mismatch in tiger home range sizes and PA size means that some tigers will invariably use areas outside the reserves too (Chundawat *et al.,* 2016). Secondly, when tiger numbers increase in the reserves, some tigers disperse to other areas. Since reserves in India are fragmented and surrounded by human use lands, tigers have no choice but to move through them. While moving outside PAs, tigers pass through human-dominated territorial forests, village lands and sometimes even urban spaces. How tigers survive in human-dominated lands is a big mystery, and a recently concluded long-term study in Madhya Pradesh showed that tigers are much more adaptable to using human-use areas and successful in finding prey in such lands than previously thought (Kolipaka, 2018). Such behavioral plasticity of tigers to adapt to human-dominated lands raises the question of the ability of tigers to survive in urban areas. Since urban landscapes appear within the more extensive tiger landscapes identified in India, assessing the survivability of the tiger in such areas becomes essential.

In recent years, due to unplanned urbanization of cities resulted in dwindled, fragmented patches of natural vegetation and altered ecosystem functionalities (Bateman *et al.,* 2012). Despite the expansion in urban areas and increased awareness of urbanization impacts on wildlife, urban wildlife studies have not been appraised systematically (Magle *et al.,* 2012). Wild carnivores not only survive in cities but also have managed to maintain varying levels of intimacy with human societies and exploit anthropogenic food sources and shelter to their significant advantage (Radeloff *et al.,* 2005; McKinney, 2006; Bateman, 2012; Athreya *et al.,* 2014; Surve, 2015). So, it becomes enthralling to understand that why several carnivore species are establishing themselves in and around cities across the globe.

OBJECTIVES

Summer Survey (April-July 2019) for Carnivore-Prey Occupancy and Anthropogenic disturbances has been carried out in the Urban Landscape of Bhopal i.e. Green Spaces within city municipal limits and within 30 km from BMC Boundary.

a) To understand the presence of tigers in the urban landscape of Bhopal
b) To understand the distribution of Anthropogenic pressure in the urban landscape of Bhopal
c) To understand the space-use by carnivores using camera traps in the urban landscape of Bhopal
d) To establish new collaborations to manage the wild-urban landscape around Bhopal

METHODOLOGY

For the above-mentioned objectives, all the green spaces within city and 30km of the city municipal limits have been demarcated and mapped. These green spaces include Corridor patches, Protected Areas, shrublands, city forests, parks, etc. Green spaces of minimum size of 1 sq. km has been considered for study. Around 2800 sq. km of green patches in and around Bhopal City (Bhopal Municipal Corporation (BMC) and 30km from BMC Boundary) were identified and gridded in 2x2 sq. km. A total of 190 grids (114 in Bhopal-Ratapani Corridor & 76 in urban landscape) of 2x2 sq. km. of varying forest sizes were identified for the study.

For objective a) to understand the presence of tigers in the urban landscape of Bhopal. Tiger and other large carnivores sign and tracks are being surveyed and GPS recorded in each grid. Each track after 100m was considered as individual tracks until the same track continues.

For objective b) to understand the distribution of anthropogenic pressure in all grids. Different anthropogenic activities i.e. Cattle Grazing, NTFP Collection, Logging signs, etc. were recorded in each grids.

For objective c) Camera traps were installed in the study area to observe activities and presence of carnivores, wild herbivores, cattle's and human presence in wild-urban landscape of Bhopal.

For objective d) to establish collaborations for managing the wild-urban landscape of Bhopal, Forest department Madhya Pradesh is supporting the study in their administration area. Sensing Clues Intelligence, is Amsterdam based organization and have developed an Android based App for monitoring and managing the wild landscapes "CLUEY APP".

RESULTS

During the summer survey 2019, we carried out the extensively sign and track surveys for tigers in 155 grids of 190 grids. Out of 155 grids, all the grids were recorded with anthropogenic pressure in terms of direct and indirect sighting of cattle grazing, NTFP collection, logging, and fire. The tiger presence was recorded in 41 grids in the surveyed area including the opportunistic records. (Map in annexure I)

The anthropogenic activities have been recorded in all 155 grids. These include majorly cattle grazing, collection of NTFP, logging signs, etc. The tiger presence was not recorded in the south-eastern side and north-western during the survey, which may be due to heavy human disturbances and lack of connecting patches of forest respectively.

The camera traps results show the areas are highly human-dominated and frequently used by tigers, wild herbivores, cattle, and people. Tigers and leopard presence in the area is seen at varying times. (Pictures in annexure 2)

The Cluey app records the observations on mobile phone using non-network platform and have potential to ease the management for the field researchers, staff and forest managers. The app is still in trial phase and we are expecting a launch soon. (Reference Photographs in Annexure 4)

12 volunteers and 4 interns have worked during the summer season survey. They have helped us to document the bird and butterfly diversity in the region.

NEXT SURVEY:

The winter survey have been started since November 2019. The delay was due to extended monsoons in Central India.

Acknowledgment

Administrative Permissions and Support

- Madhya Pradesh Forest Department
- Wildlife Institute of India, Dehradun
- Rufford Foundation, UK
- MP State Biodiversity Board
- InsPIRE Network for Environment, Delhi
- Sensing Clues Wildlife Intelligence, Amsterdam (https://www.sensingclues.nl/)

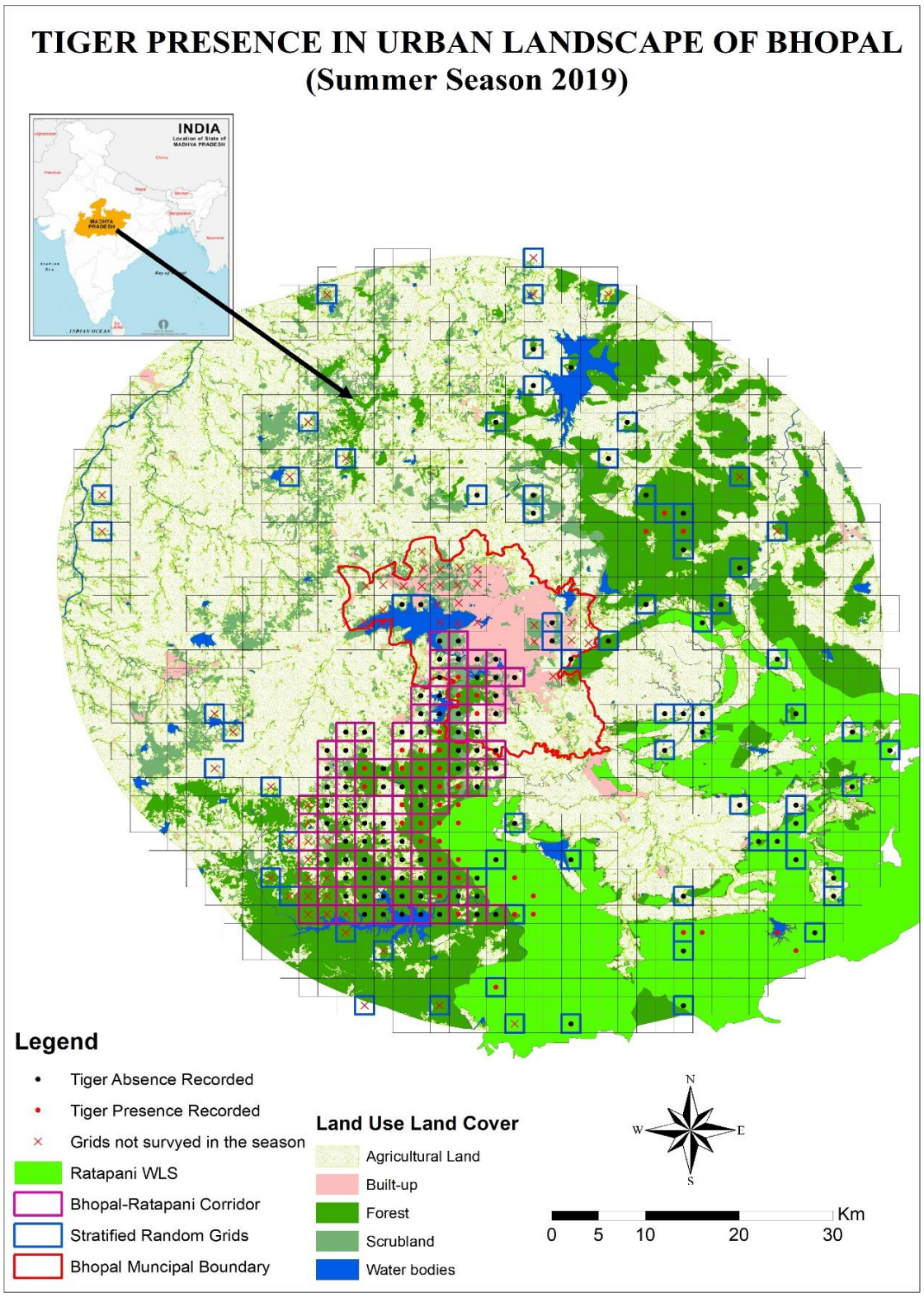
Social media handles

Email: livingalongthecarnivores@gmail.com

Facebook Page: Living Along the Carnivores

Instagram: livingalongthecarnivores

Annexure 1: Map of Tiger Presence in Urban landscape of Bhopal



Annexure 2: Camera Trap Images of Carnivores, Prey-base and People


10/3/2019 1:59 PM
Cuddeback Digital


8/12/2019 8:20 PM D
Cuddeback Digital


8/13/2019 11:06 AM D
Cuddleback Digital


9/7/2019 11:59 AM D
Cuddleback Digital


10/15/2019 10:40 PM C
Cuddeback Digital


8/30/2019 9:17 AM A
Cuddeback Digital


10/4/2019 11:22 AM B
Cuddleback Digital

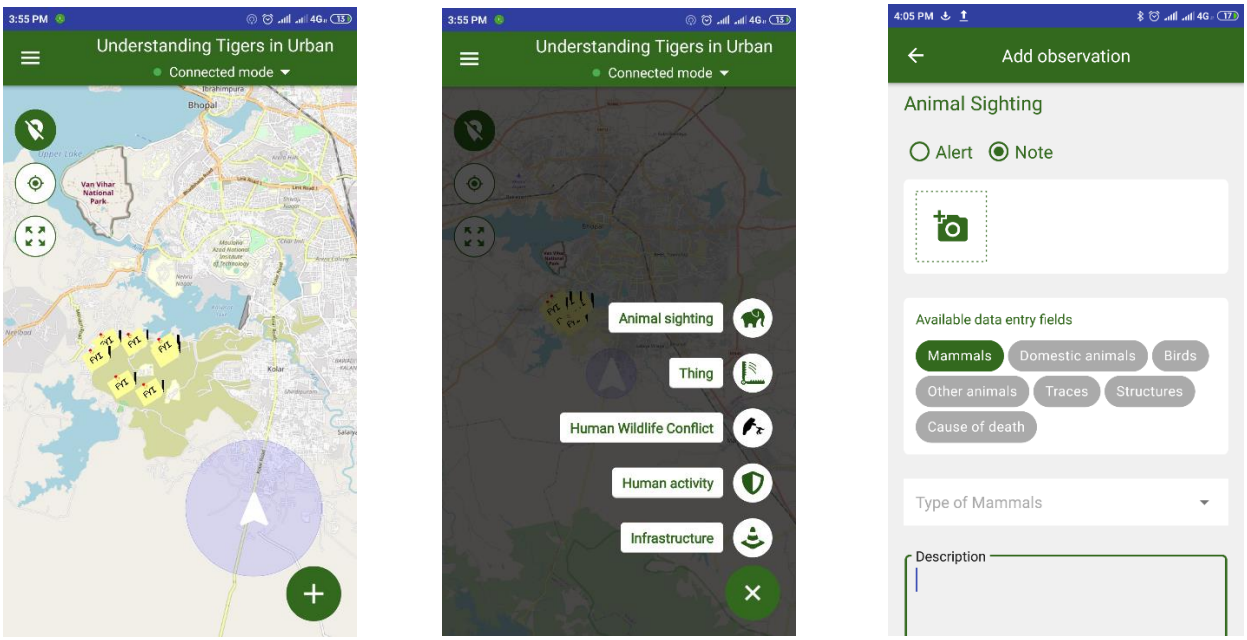

8/8/2019 1:01PM A
Cuddleback Digital


10/4/2019 2:45 PM B
Cuddeback Digital

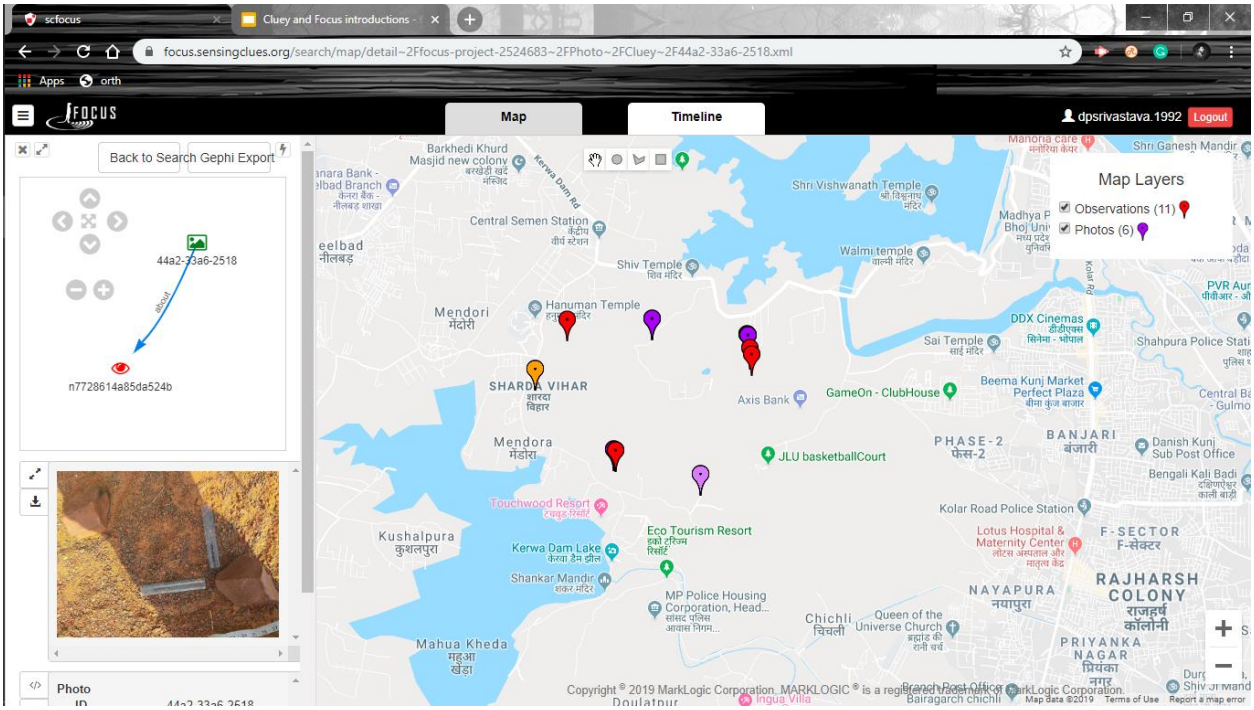

6/26/2019 8:05 PM A
Cuddeback Digital

Annexure 3: School Awareness Activities

Annexure 4: Cluey App by Sensing Clues



(Android based Cluey App)



(Web based Focus Platform)