



# NEEDS OF BIG CATS CONSERVATION FOR COMPUTER VISION

ROHIT SINGH

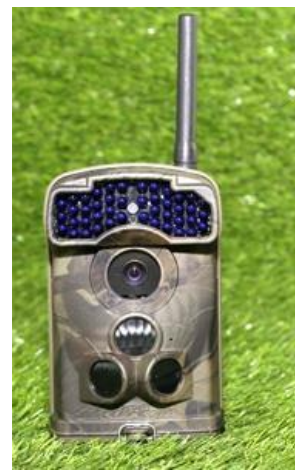
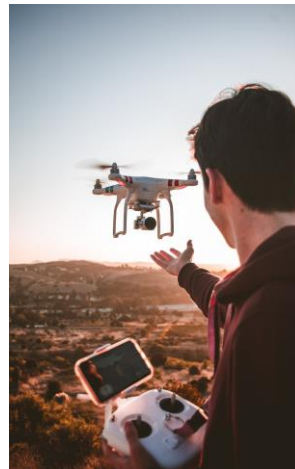
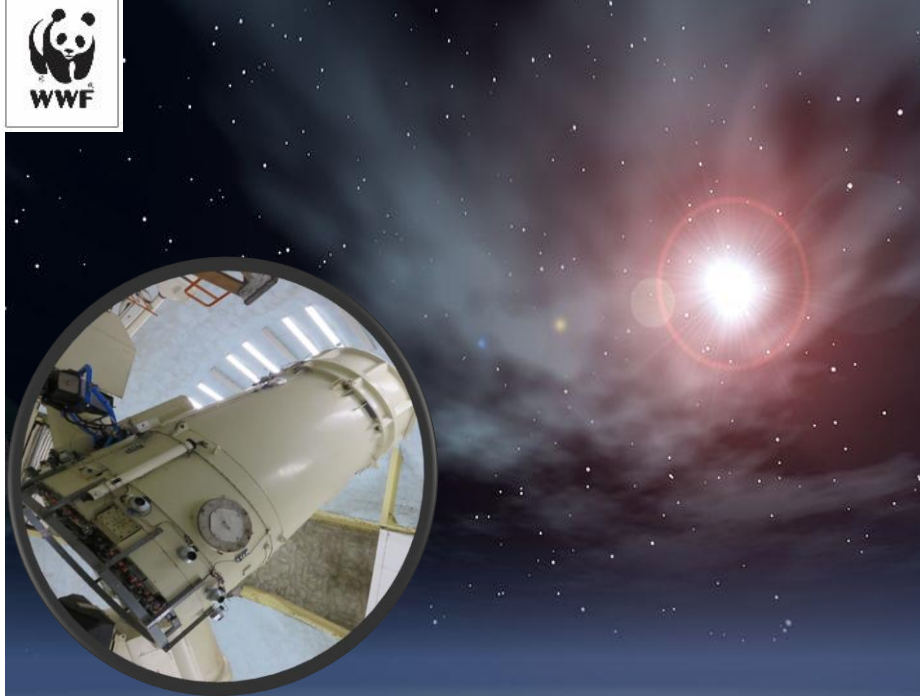
Zero Poaching Lead  
WWF Tiger Alive Initiative

PEIQI LIU

Director  
WWF NEC Regional Office











## TIGER HISTORIC AND PRESENT RANGE

IN LITTLE OVER A CENTURY, THE WILD TIGER POPULATION SHRUNK BY OVER 95%. BUT WE'RE STARTING TO SEE NUMBERS INCREASE, THANKS TO GLOBAL CONSERVATION EFFORTS

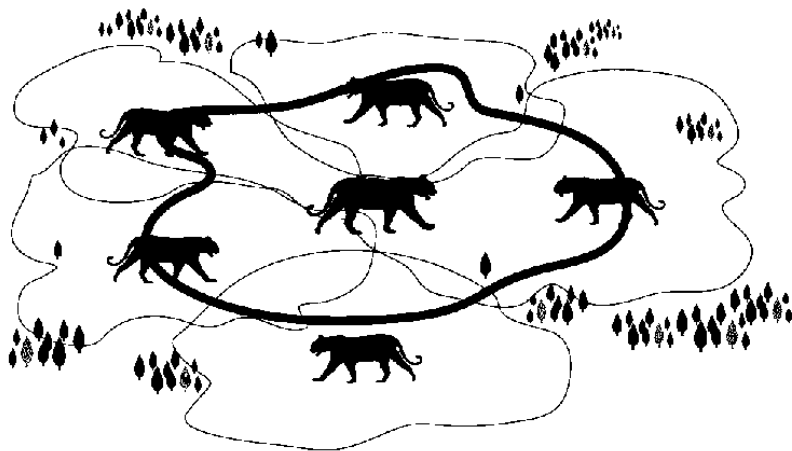
### MAP KEY

- At the beginning of the 20th century, there may have been 100,000 wild tigers, that roamed from Korea to as far west as Turkey
- There may still be tigers in these areas, however there has not been evidence of tiger breeding in recent years
- These areas are confirmed to have had wild tigers breeding over the last decade, with some areas seeing increases in numbers. When wild tigers have suitable habitat and prey, and are protected, populations can recover

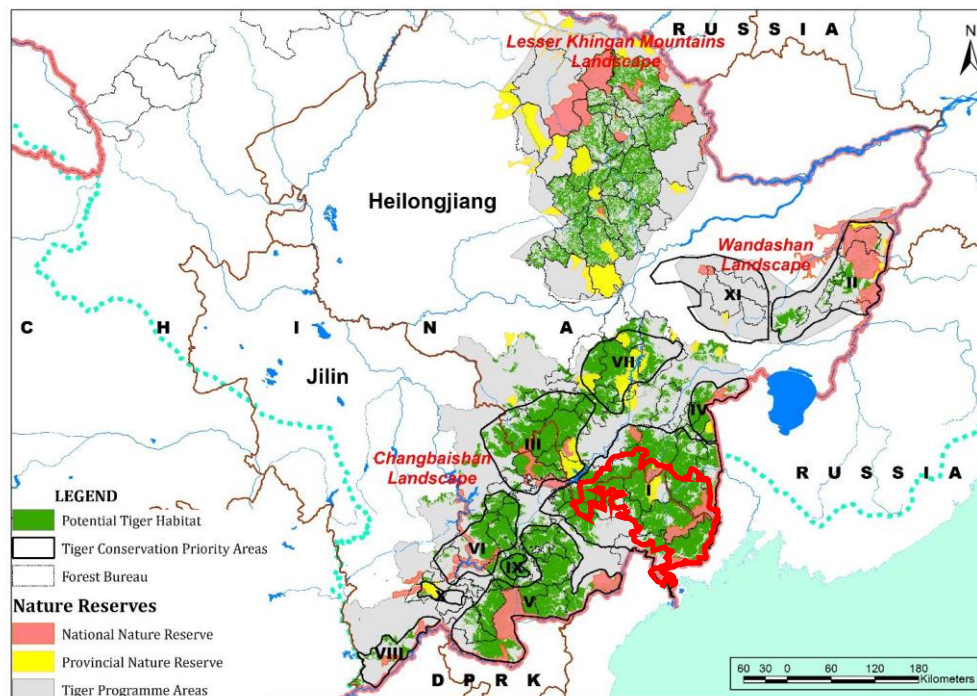
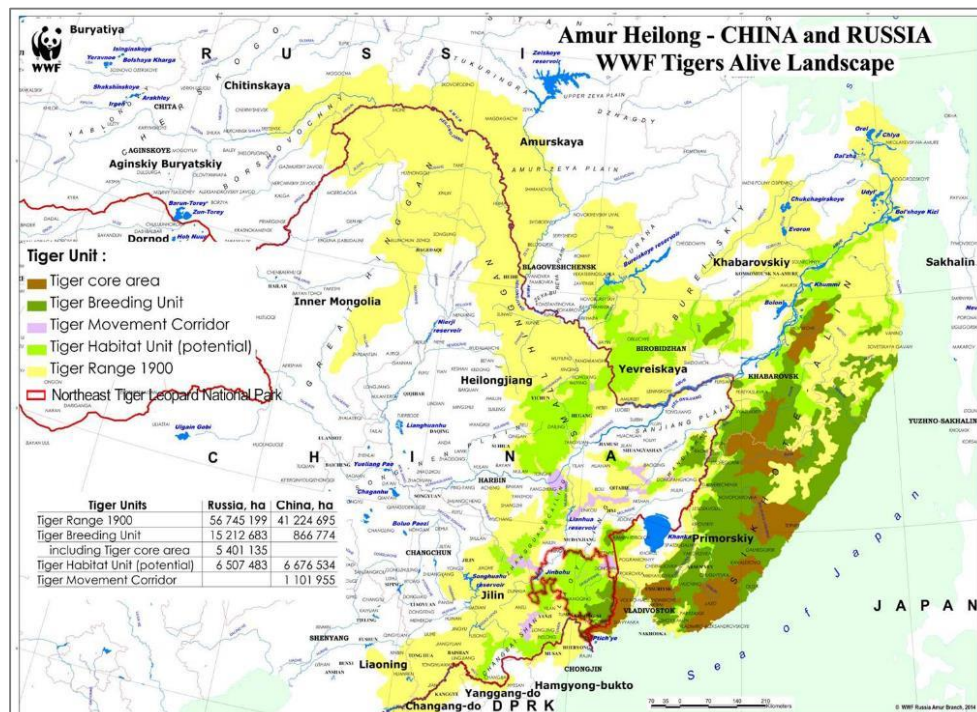
Geographical detail of current and functionally extinct tiger range is based on IUCN 2014. The IUCN Red List of Threatened Species, Version 2014.1. [www.iucnredlist.org](http://www.iucnredlist.org)

### TIGER RANGE COUNTRIES

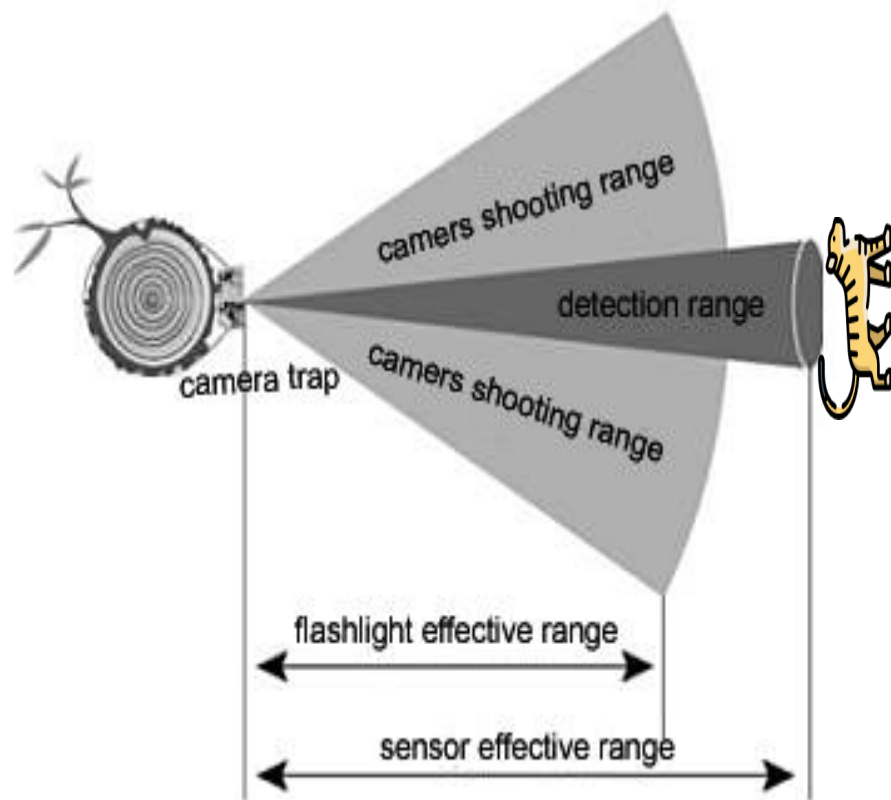
- |              |             |
|--------------|-------------|
| 1 BANGLADESH | 8 MALAYSIA  |
| 2 BHUTAN     | 9 MYANMAR   |
| 3 CAMBODIA   | 10 NEPAL    |
| 4 CHINA      | 11 RUSSIA   |
| 5 INDIA      | 12 THAILAND |
| 6 INDONESIA  | 13 VIETNAM  |
| 7 LAO PDR    |             |



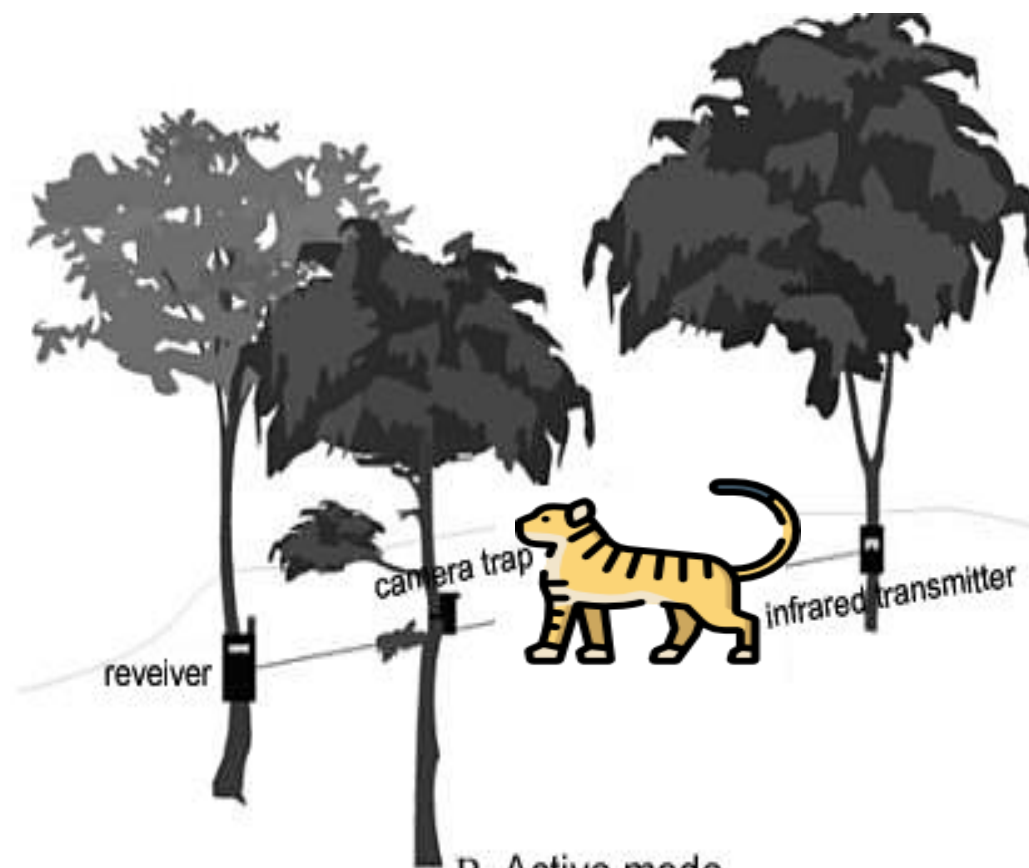
— 雄虎家域范围 — 雌虎家域范围  
Male Tiger Home Range Female Tiger Home Range



# CAMERA TRAPPING

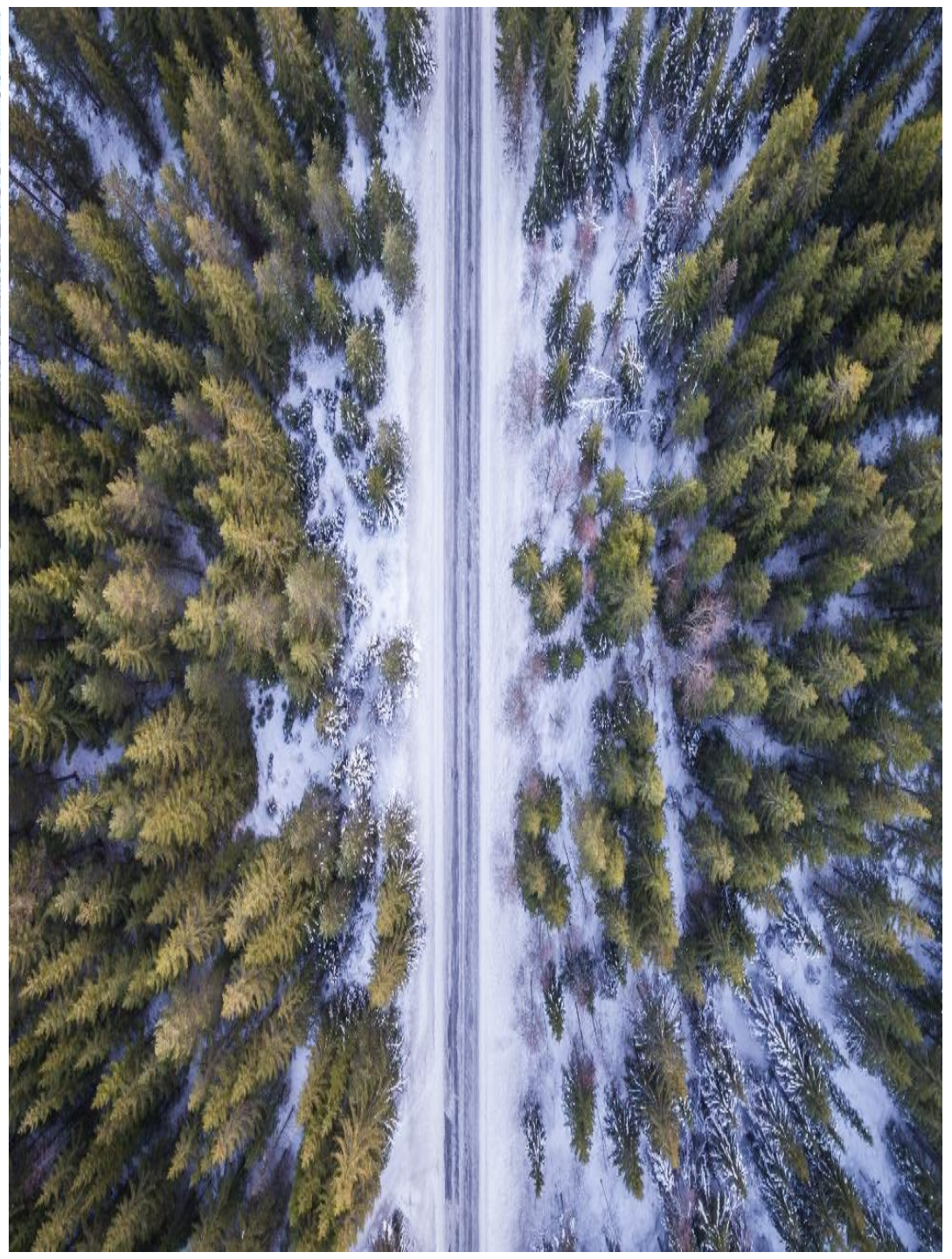


A Passive mode

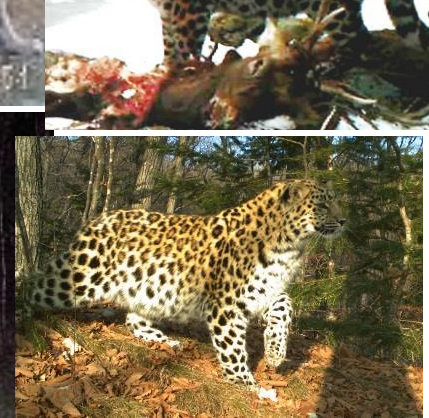
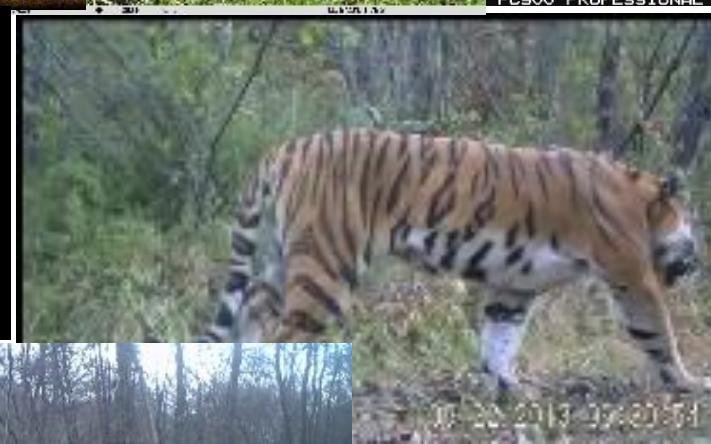


B Active mode











# Estimation to Wildlife Population



## Camera Trapping Survey

- Capture Re-capture Model
- Base on the data of individuals of wild animals
- More precise
- Easy-use for monitoring the population of wild animals

VS



## Traditional Field Survey

- Transect or sample survey
- Base on marks and signs  
Experience dependent
- Less precise
- Difficult for monitoring the population of wild animals

# Estimation to Wildlife Population



## Camera Trapping Survey

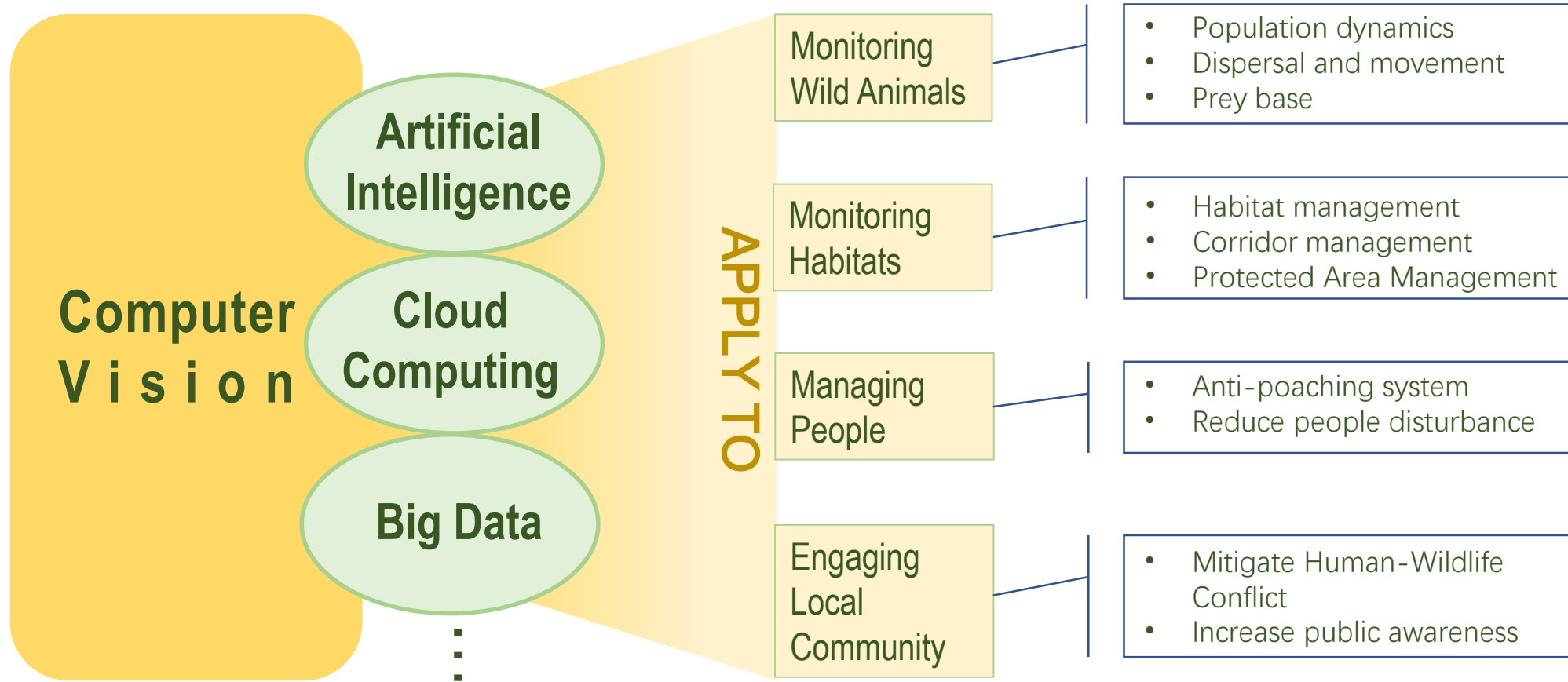
### Challenge

- Huge amount of blur and useless images caused by overexposure, the dim and darkness, advanced or tardive triggering and mis-triggered by environment
- Huge workload for filtering and processing the mega data
- Storage and transmission of data





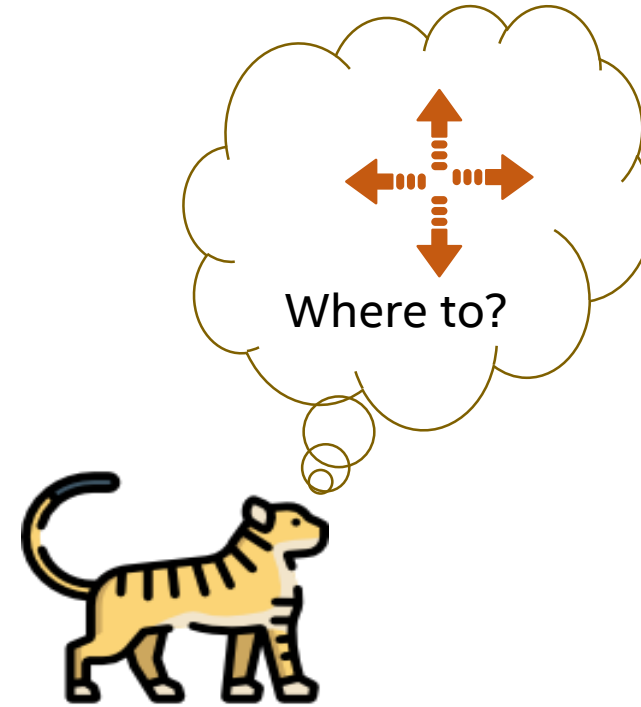
# What Does Wildlife Conservation Need?





# Monitoring Wild Animals

- Monitoring the trend of the population
- Studies on prey base
- Population behavior (dispersal and movement mode)
- Studies on the population structure





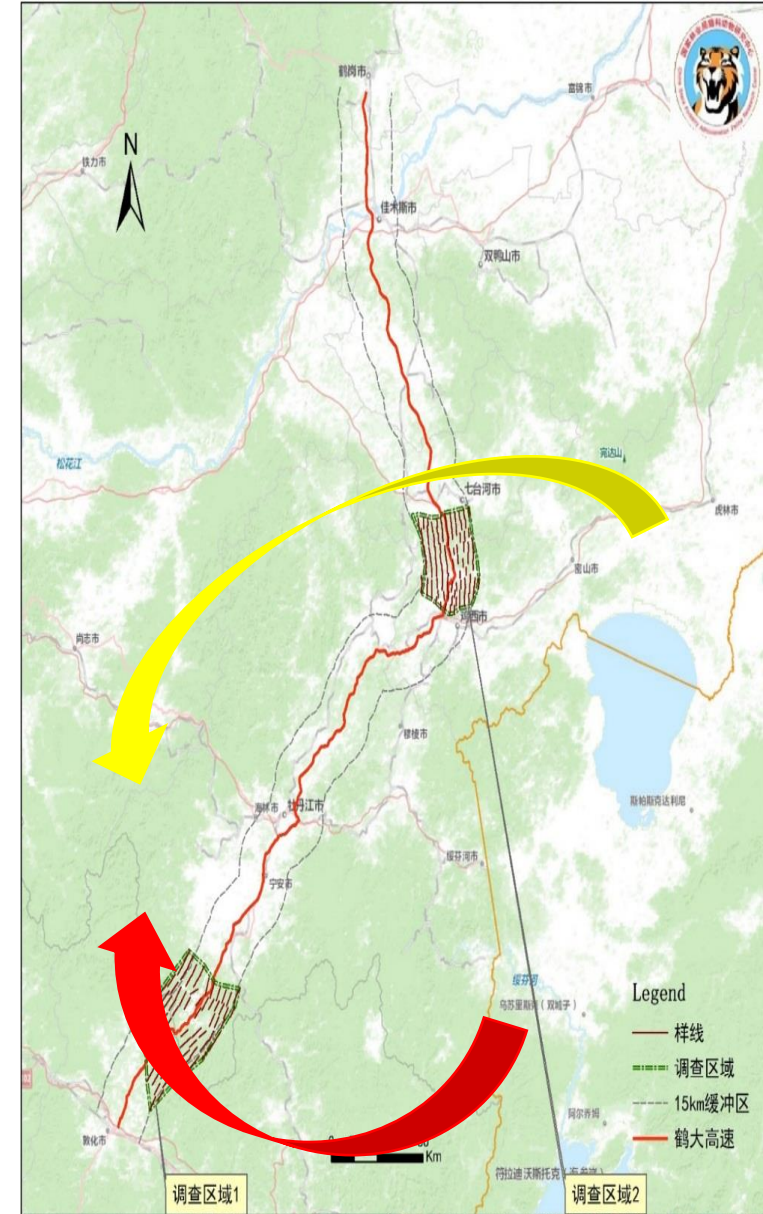
# Bottleneck of Habitats

- **Ensuring enough area**
  - stop logging and restoration
- **Ensuring the quality**
  - tiger friendly forestry management
- **Ensuring the connectivity**
  - corridor identification/construction/monitoring/management

## HABITAT ASSESSMENT

## HABITAT RESTORATION (reference for restoration)

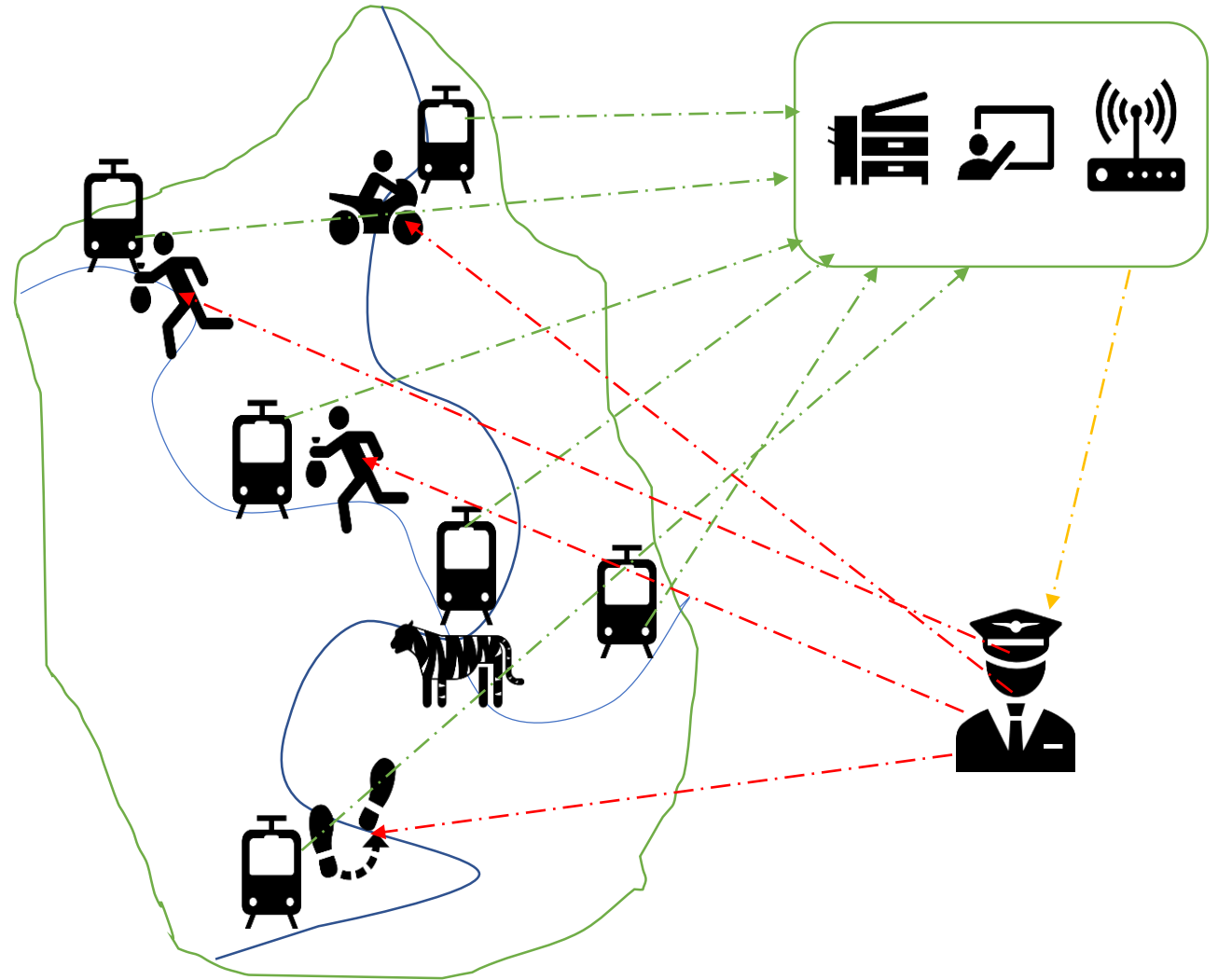
## HABITAT MANAGEMENT





# People Management

- Halt poaching
- Reduce people disturbance
- Mitigation HWC







**Together,  
possible!**