DISTRIBUTION PATTERNS OF WILD FELIDS IN PAKKE TIGER RESERVE, NORTH EAST INDIA

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INTRODUCTION

Carnivores play important ecological roles and stabilize the communities. They are at greater risk of extinction than any other mammalian taxa. Carnivore conservation requires an understanding of species distribution patterns in order to protect the ecological factors essential for the species.

Study objectives

- Determine effect of landscape features on the distribution patterns of tiger, leopard and leopard cat.
- Use of species distribution models to create distribution maps for each species.

MATERIALS AND METHODS

Study Area

Pakke Tiger Reserve (PTR) is located in Himalayan biodiversity hotspot and is home to seven wild felids. It faces an increasing anthropogenic pressure as deforestation rates rise in neighboring protected areas.

Data Collection

We used data from 27 cameras traps that were active from January 1st to March 30th 2014, constituting a total of 19 trap nights. Each trap night was defined as 72 hours.

Analysis

We used single season single species occupancy modelling, which accounts for imperfect detection. We used AIC scores to select the model to select covariates that describe the distribution patterns best.

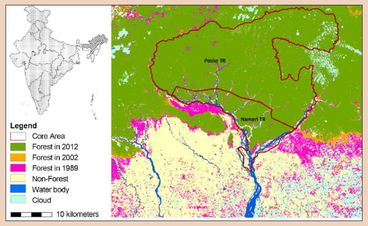

Fig 1. Pakke Tiger Reserve in northeastern India showing the change in forest cover over time.

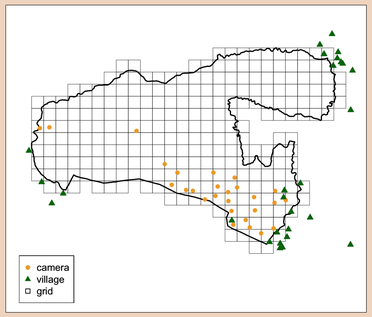

Fig 2. Location of camera traps and villages within the PTR.

Variable Code	Explanation	Unit
Habitat specific covariates		
TFC	Total Forest Cover	%
Elev	Elevation	m
NDVI	Normalized Difference Vegetation Index	%
Forest type		
BLF	Broad leave forest	%
SEF	Semi evergreen forest	%
DF	Deciduous forest	%
Anthropogenic factors		
DiV	Distance to the closest village	m
DiE	Distance to the edge of the park	m

Table 1. Environmental and anthropogenic variables used to analyze wild canid distribution pattern in Pakke Tiger Reserve.

CONCLUSIONS

- Our results show that Forest cover drives distribution of wild felids in PTR.
- Results from leopards and tiger should be inferred as habitat use, because our grid size is smaller that the actual home ranges.
- Next steps will include multi-season data analysis using larger datasets.

RESULTS

TIGER

Fig 3. *Panthera tigris tigris*

\+ Semi evergreen forest

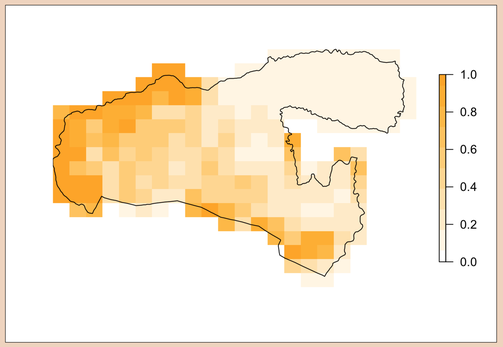

Fig 4. Predicted distribution maps based on occupancy estimates for tiger in PTR.

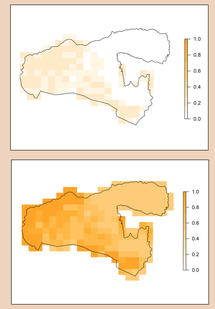

Fig 5. 95 % CI

LEOPARD

Fig 6. *Panthera pardus fusca*

\+ Total forest cover

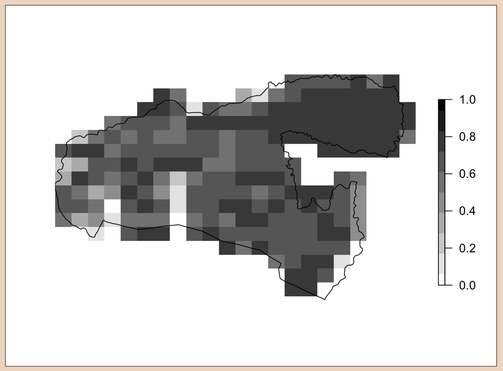

Fig 7. Predicted distribution maps based on occupancy estimates for leopard in PTR

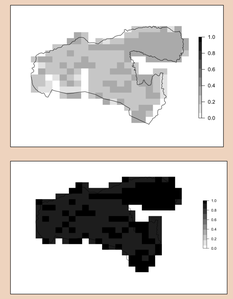

Fig 8. 95 % CI

LEOPARD CAT

Fig 9. *Prionailurus bengalensis*

\+ Total forest cover

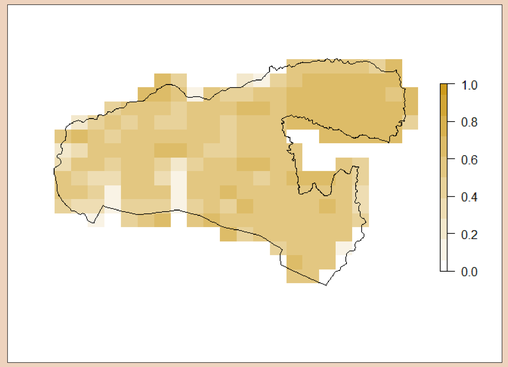

Fig 10. Predicted distribution map, based on occupancy estimates for leopard cat in PTR

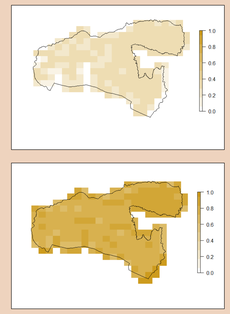

Fig 11. 95 % CI