

Factors affecting the distribution and landscape use of sympatric carnivores in an arid ecosystem

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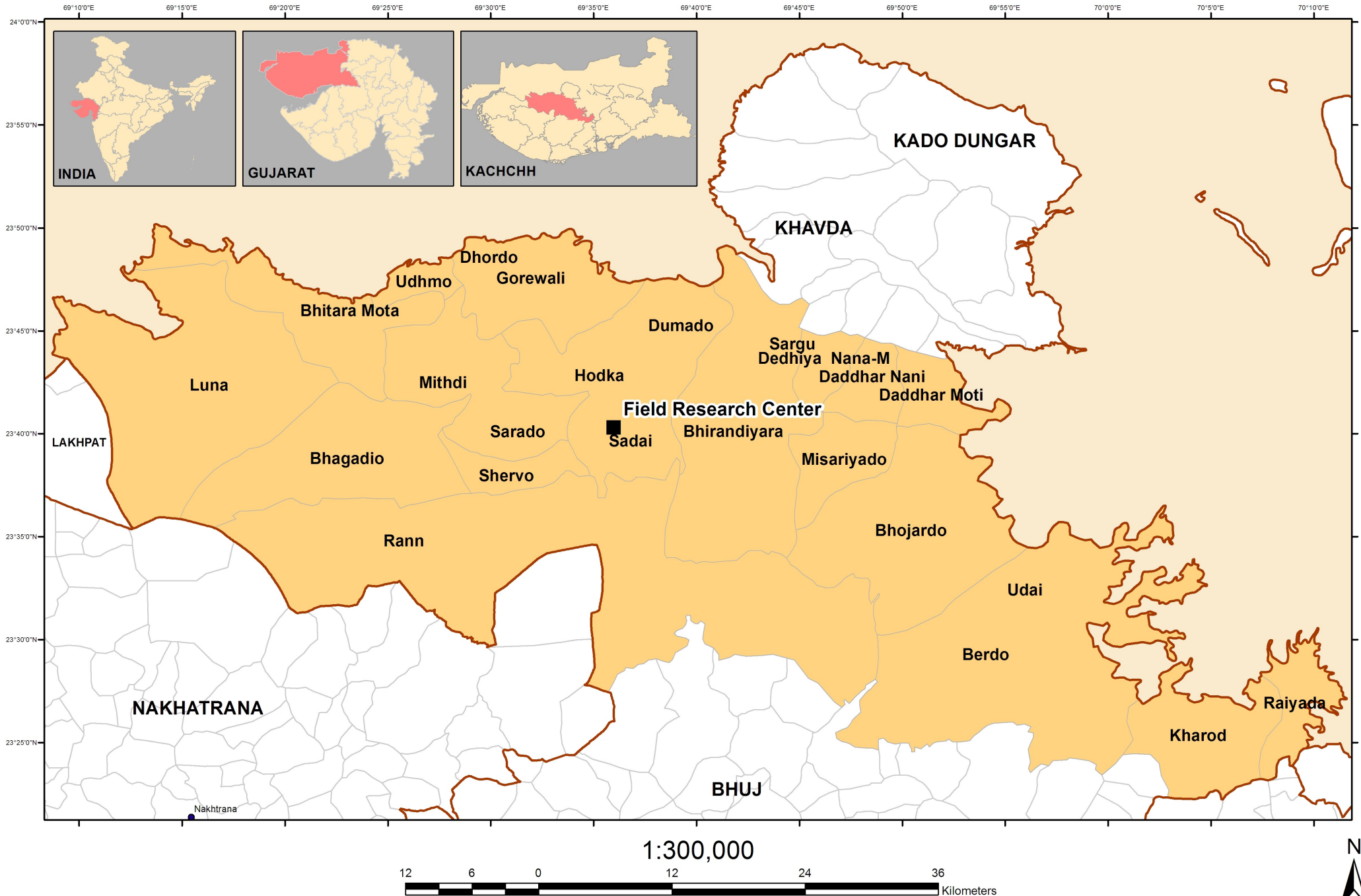
Guide: Dr. Abi Tamim Vanak (ATREE)

Co-guide: Dr. Vishwesh Guttal (CES, IISc)



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Banni Location Map - Kachchh District



Why Banni?

- Multiple canids
- Two species of foxes
- Two species - human-subsidized: jackals & dogs
- Interesting plant-animal dynamics
- Modification of landscape by invasive *Prosopis*



Photo: Abi Tamim Vanak

Common Name	: Indian Fox or Bengal Fox
Scientific Name	: <i>Vulpes bengalensis</i>
Distribution	: Most parts of India except the Himalayan range, Indus river valley, and wet forests
Diet	: Rodents, reptiles, invertebrates, small birds, and fruits
Threats	: Hunting, disease, and loss of habitat
Homerange	: 4 sq. km.



Photo: Kalyan Varma

Common Name	: Desert Fox or White-footed Fox
Scientific Name	: <i>Vulpes vulpes pusilla</i>
Distribution	: Northwestern India (arid regions of Gujarat and Rajasthan)
Diet	: Rodents, reptiles, and invertebrates
Threats	: Disease and loss of habitat
Homerange	: 9 sq. km.



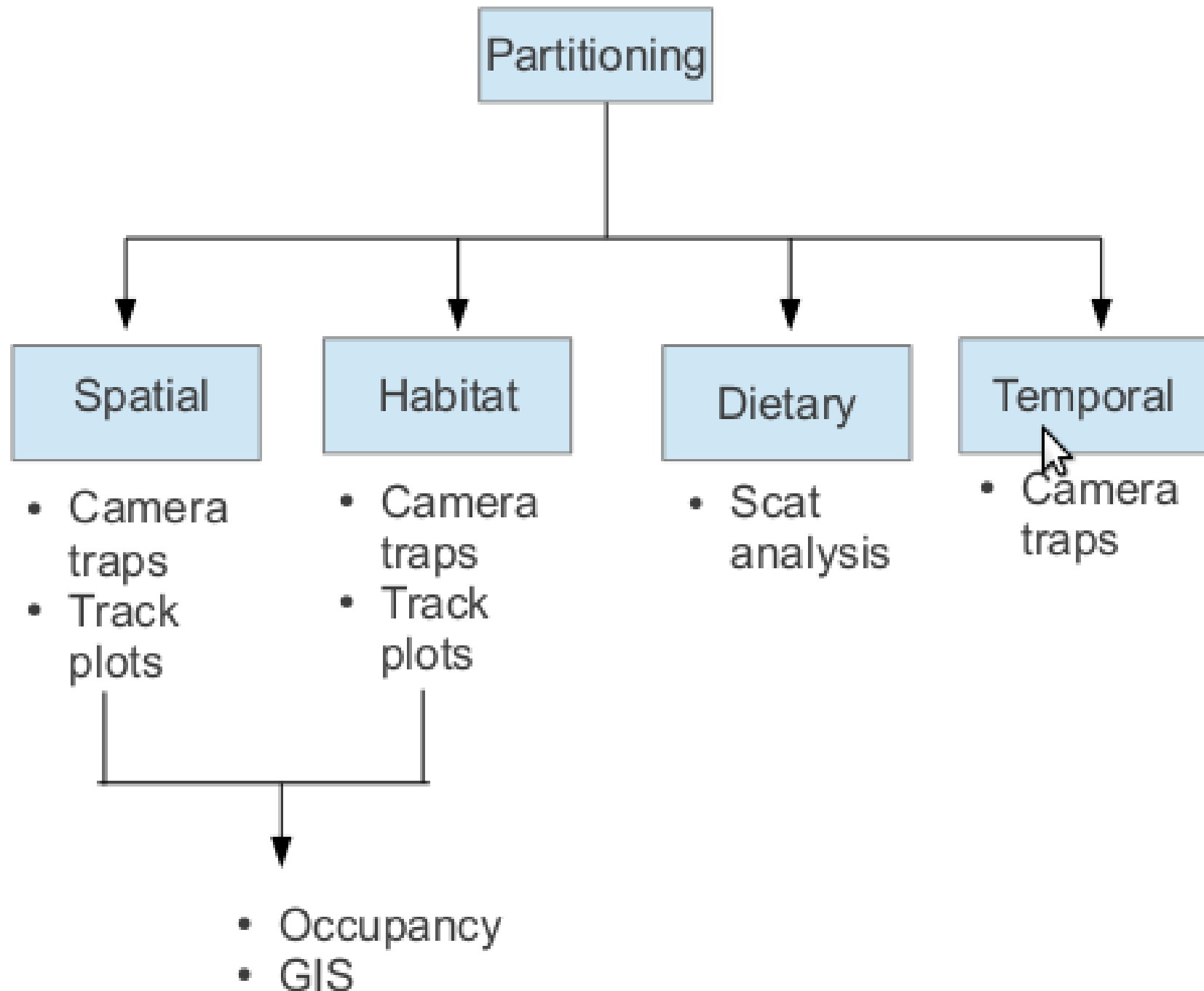
Common Name	: Golden Jackal
Scientific Name	: <i>Canis aureus</i>
Distribution	: Most parts of India except the Himalayan range and Indus river valley
Diet	: Rodents, reptiles, invertebrates, small birds, and fruits
Threats	: Hunting, disease, and loss of habitat
Homerange	: 16 sq. km.





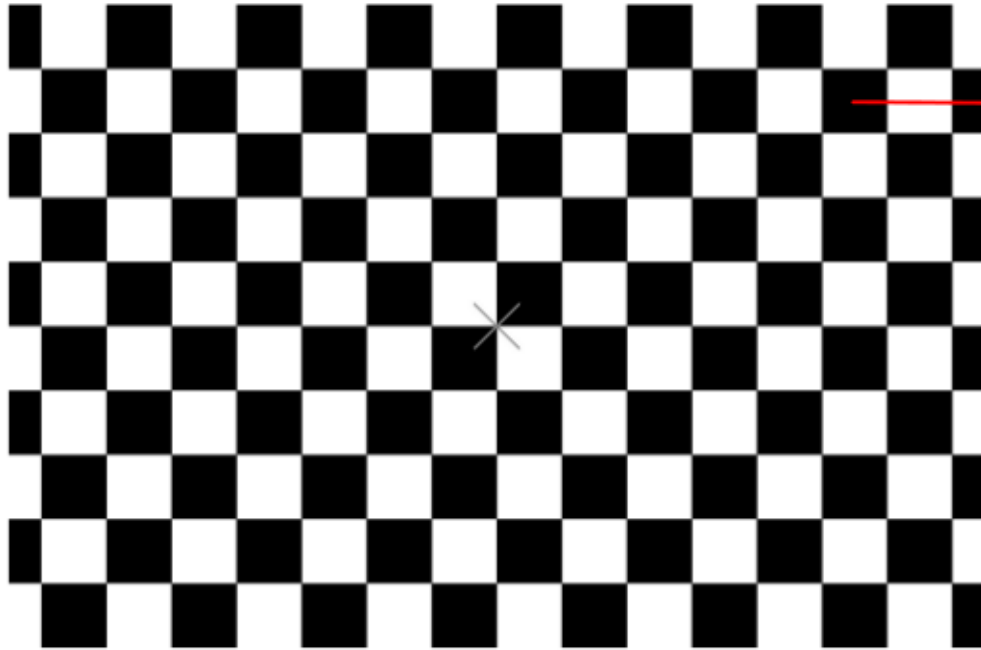




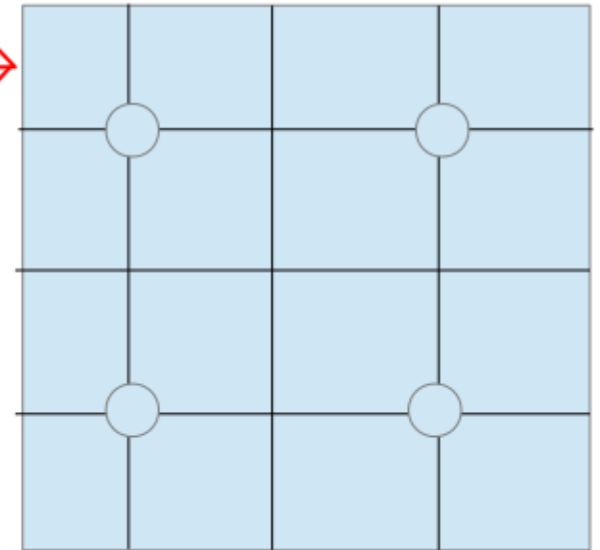


Methodology

- Banni grassland landscape - 2500 sq. km
- Divided into 16 sq. km cells
- Chequerboard design
- Approximately 78 cells
- 4 camera trap locations per cell → roughly 320 trap locations in total
- Temporal replicates - 4 consecutive nights per camera trap



2500 sq.km. - 156 cells



16 sq.km. - 4 camera traps

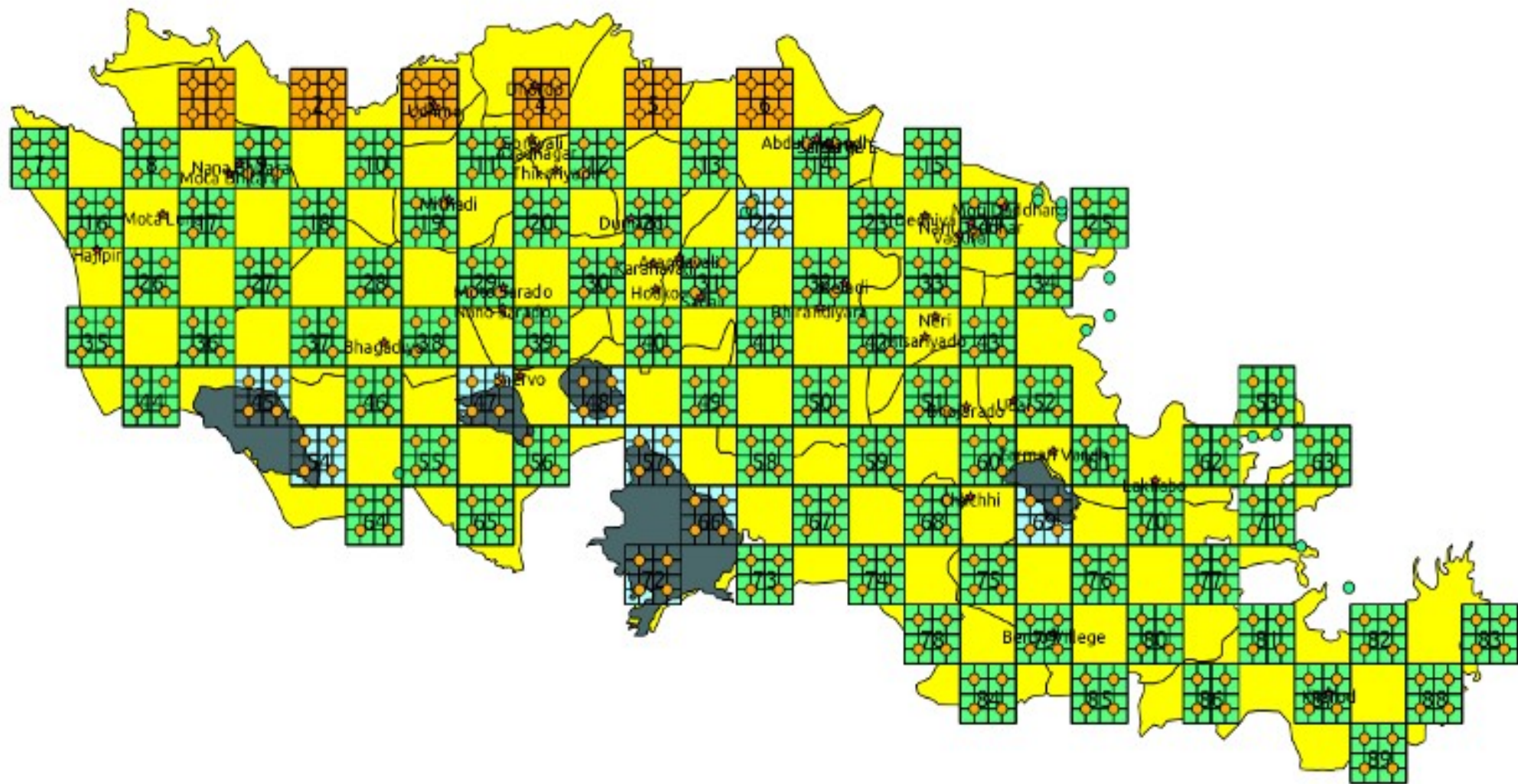




Photo : Pankaj Joshi

Covariates Measured

- On ground:
 - Vertical density
 - Ground cover
 - Vegetation type
 - Presence of any of the other canid species
 - Food availability - burrow count, indirect signs of prey
 - Anthropogenic influences - dung pat count, lopping
- Remotely-sensed/GIS:
 - Proximity to human habitation
 - Proximity to road
 - Proximity to water source
 - Vegetation type

Effort

- **Spatial and Temporal Partitioning:**

- 1. Camera Trapping –

- 74 Grids * 4 Camera Traps * 4 days

- ~300 * 4 -> 1200 camera trap nights

- 2. Photographic capture – recapture -

- 16 / 50 villages in Banni – stratified random sampling

- based on village size (no. of households)

- 3. Photographs of all canids encountered – dead or alive

- **Habitat Partitioning :**

- Remotely-sensed, collected for each camera trap

- **Dietary Partitioning :**

- Scat collection at den sites for foxes, opportunistically for jackals

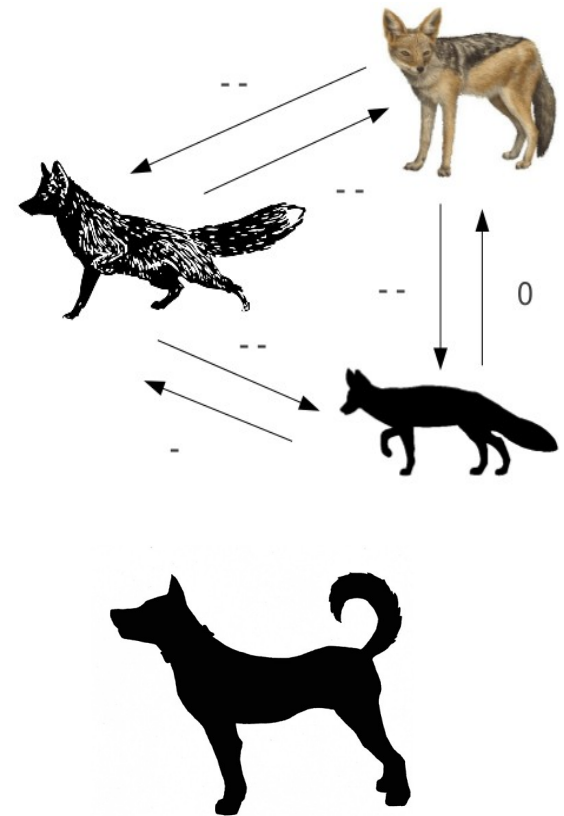
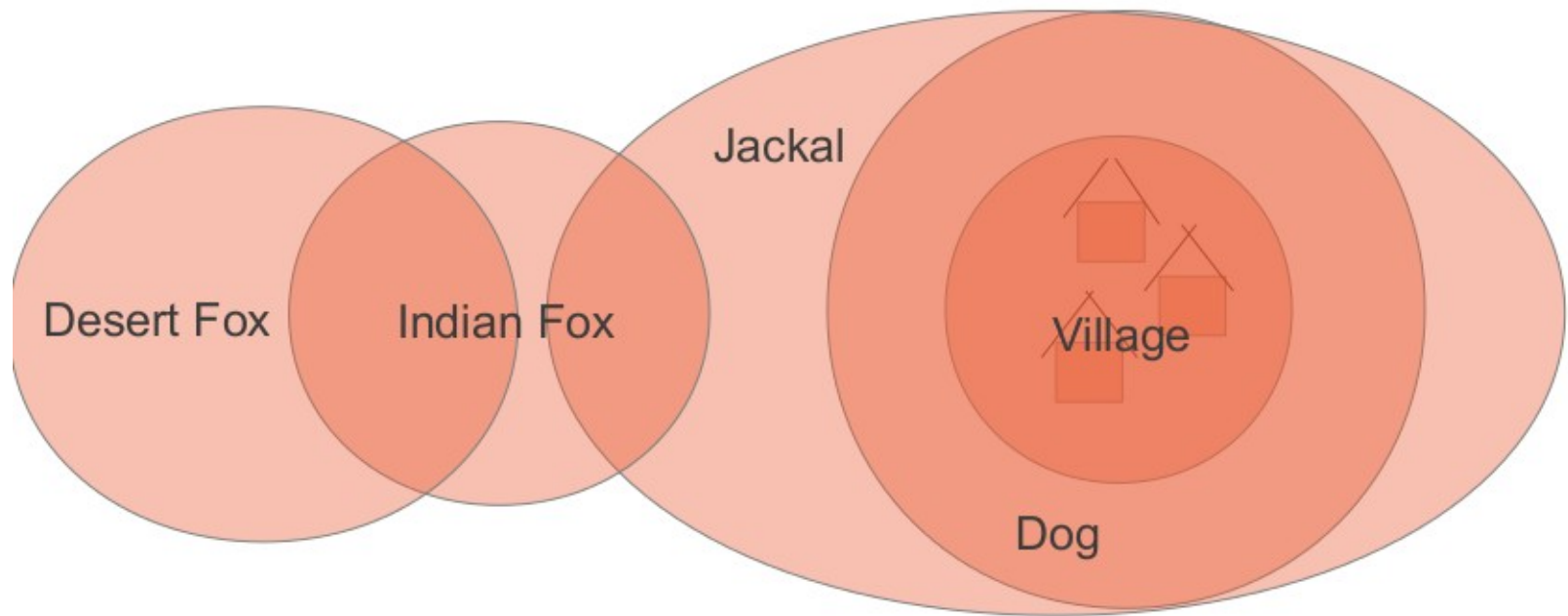
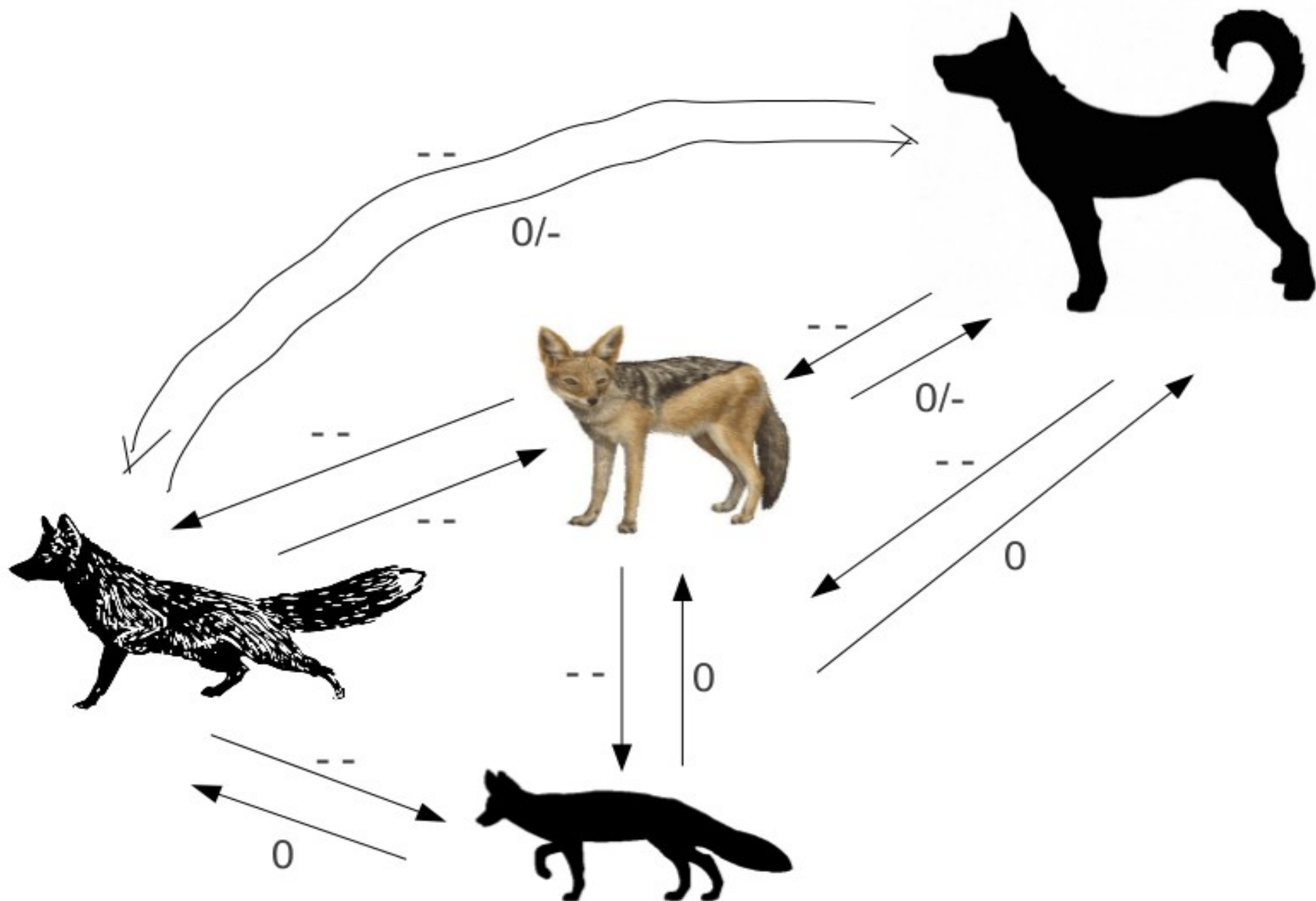




Photo : Ovee Thorat





Implications

- Understanding the relationships between human-subsidized and wild carnivores
- Understanding the interplay between anthropic changes (development, landuse, etc.) and carnivore populations
- Baseline ecological data on multiple canids for a region
- Extrapolation to assemblages with rare and elusive taxa, potentially

Acknowledgements

- Dr. Abi Tamim Vanak (ATREE), for being such an amazing mentor!
- Dr. Vishwesh Guttal (IISc), for his guidance and direction.
- Dr. Pankaj Joshi (RAMBLE), for making everything possible in Kutch.
- NCBS, Department of Science and Technology – Government of India, RAMBLE, ATREE and Sahjeevan for funding everything.
- Dr. Ajith Kumar (NCBS), for his support, encouragement, and guidance.
- Chintan Sheth (ATREE), Ameya Gode (ATREE), and KLINK for GIS input and troubleshooting.
- Dr. Mahesh Sankaran (NCBS), Dr. Ankila Hiremath (ATREE), Dr. Jayshree Ratnam (NCBS), and Ramesh Bhatti (Sahjeevan) for their support.
- Dr. Suhel Quader (NCF), Chandrima Home (ATREE), Kulbushan S. Suryawanshi (NCF), Chintan Sheth (ATREE), Anil Gohil (Sahjeevan), Girish Punjabi, Priyanka Runwal, Ovee Thorat, Chetan Misher, and my classmates for their inputs and discussions.
- Megha Bhai, Rasul Bhai, Mutthalib Bhai, Majid Kaka, Kabul Bhai, Ramzan Kaka, Salim Mama, and everyone at Banni, the RAMBLE fieldstation, and the Sahjeevan office in Bhuj who helped me with things great and small.
- Dr. Prabhu Ramachandran (IIT Bombay) for troubleshooting at every stage, among other things.



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“Kutch nahi dekha, to kuch nahi dekha!” - The Gujarat Tourism Slogan

THANK YOU!