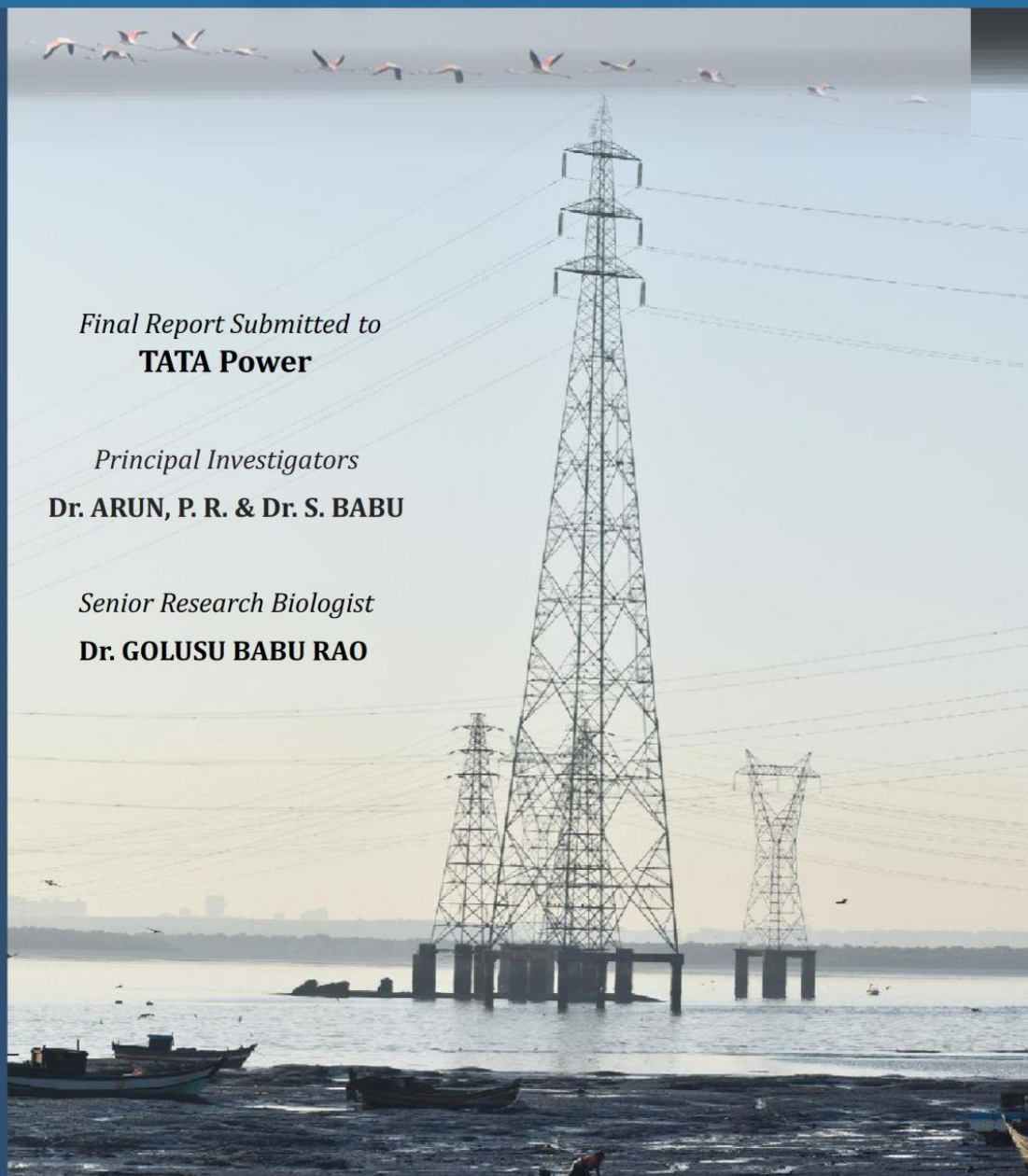


Avifauna Study for the Proposed Replacement Transmission Lines of 110 KV Khopoli-Mankhurd and Khopoli-Chembur with Reference to The Thane Creek Flamingo Sanctuary to Suggest Appropriate Bird Diverters

Final Report Submitted to
TATA Power

Principal Investigators
Dr. ARUN, P. R. & Dr. S. BABU

Senior Research Biologist
Dr. GOLUSU BABU RAO



Sálim Ali Centre for Ornithology and Natural History

South India Centre of Wildlife Institute of India,
Anaikatty, Coimbatore - 641 108, Tamil Nadu



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

2023

2023

© Salim Ali Centre for Ornithology and Natural History

Suggested Citation:

Arun, P.R., Babu S, & Rao, G. Babu (2023) Avifauna Study for The Proposed Replacement Transmission Lines of 110 KV Khopoli-Mankhurd and Khopoli-Chembur with Reference to The Thane Creek Flamingo Sanctuary to Suggest Appropriate Bird Diverters. SACON, Coimbatore. Project Report (PR-253), 61 pp.

Avifauna Study for The Proposed Replacement Transmission Lines of 110 KV Khopoli-Mankhurd and Khopoli-Chembur with Reference to The Thane Creek Flamingo Sanctuary to Suggest Appropriate Bird Diverters

Final report Submitted to
TATA Power, Mumbai

Principal investigators
Dr. Arun P.R., & Dr. S. Babu
&
Senior Research Biologist
Dr. Golusu Babu Rao



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Sálim Ali Centre for Ornithology and Natural History (SACON)
(South India Centre of Wildlife Institute of India, Dehradun)
Ministry of Environment, Forest and Climate Change, Govt. of India
Anaikatty (PO), Coimbatore- 641 108

September 2023

CONTENTS

1	ACKNOWLEDGMENTS	2
2	EXECUTIVE SUMMARY	3
3	INTRODUCTION	5
4	OBJECTIVES	11
5	STUDY AREA.....	12
5.1	Thane Creek/Thane Flamingo Sanctuary	12
5.2	Panvel Creek.....	15
6	METHODOLOGY	16
6.1	Sampling design	16
6.1.1	Point count method	17
6.1.2	Carcass survey	20
7	RESULTS	21
7.1	DOCUMENTATION OF AVIFAUNA	21
7.1.1	Overview of bird species composition in Thane and Panvel Creeks.....	21
7.1.2	Bird Abundance.....	22
7.2	FLIGHT ACTIVITY OF BIRD SPECIES AND COLLISION RISK.....	28
7.2.1	Line crossing.....	28
7.2.2	Carcass survey and interview with locals.....	34
7.3	Suggested Bird Diverters for Impact Mitigation	35
7.3.1	Effectiveness of bird flight diverters	37
8	DISCUSSION	39
9	MANAGEMENT RECOMMENDATIONS	41
10	REFERENCES	48
11	APPENDIX.....	54

1 ACKNOWLEDGMENTS

We extend our heartfelt gratitude to TATA Power for funding this avifauna study for the proposed replacement transmission lines of 110 KV Khopoli-Mankhurd and Khopoli-Chembur with reference to the Thane Creek Flamingo Sanctuary to suggest appropriate bird diverters.

We would like to express our sincere thanks to Hemant Atre (*Group Head - Transmission Projects*) and Amar Vijay Nayakavadi (*Group Head-Corporate Environment & Climate Change, Tata Power*) for their constant logistic and technical support and wholehearted cooperation throughout this study. We acknowledge Nilesh Shinde (*Specialist*) and Abhishek Karmakar (*Graduate engineer trainee, Tata Power*) for their invaluable support in the field.

Dr. P. Sathiyaselvam, Dr Ramesh Kumar S & Mrs. Nirmala Omprakash Barure of BNHS Mumbai; Dr. Sutirtha Dutta and Dr. Ramesh Chinnasamy, of Wildlife Institute of India (WII), Dehradun are sincerely acknowledged for all their help and valuable information shared.

We would like to extend our sincere thanks to the Director and faculty members of SACON and WII for all their valuable support and inputs during the execution of this project. We also thankfully acknowledge the support of Dean & Registrar of WII and our finance, administration, and library departments for facilitating the smooth operation of this project.

(Authors)

2 EXECUTIVE SUMMARY

The 110KV Khopoli-Mankhurd and Khopoli-Chembur transmission lines in the Mumbai region are about 80 years old and facing significant corrosion. Therefore, Tata Power has decided to revamp these old transmission lines in the region. Subsequently, a proposal has been submitted to the Ministry for Environmental clearance. These two transmission lines on their way to Mumbai city pass through the Thane and Panvel Creeks, these are important bird habitats in the Mumbai metropolitan region. Among the two sites, Thane Creek or Thane Creek Flamingo Sanctuary holds huge congregation of waterbird populations, and the presence of overhead transmission lines is expected to have some negative impacts on bird populations. Therefore, while approving the proposal, the evaluation committee of the Ministry of Environment, Forests and Climate Change (MOEFCC) directed Tata Power to approach the Salim Ali Centre for Ornithology and Natural History (SACON) for assistance in the installation of suitable bird diverters to minimize power line impacts on bird populations. Subsequently, SACON engaged with Tata Power to carry out bird monitoring surveys at the Thane and Panvel Creeks.

We monitored birds in and around the Thane and Panvel Creeks from March 2023-September 2023. The total count and vantage point count method was used to record bird abundance and flight activity. Carcass searches were made using the mechanised boat. Boat surveys were involved searching for dead carcasses on both sides of transmission lines in the creek. In addition to that, questionnaire surveys were conducted with local fishermen to collect the secondary source of information on power line collisions of birds. To prepare a comprehensive list of bird species from Thane and Panvel Creeks, data was collected from published and online sources.

Altogether 201 and 114 bird species were collated for Thane and Panvel Creek respectively. Of these, 52 and 57 species were recorded during the study from Thane and Panvel Creek respectively. Order Passeriformes and Charadriiformes represented the highest number of bird species followed by Accipitriformes, and Pelecaniformes. The bird species richness and abundance were highest at Thane Creek followed by Panvel Creek. Lesser Flamingo, Lesser Sand Plover, Greater Flamingo and Brown-headed Gull and Indian Cormorants were the most abundant species during the study.

The flight activity of bird species varied between sites and seasons. Overall bird species richness and abundance influenced the flight activity of species at studied sites. During the study, maximum flight activity was observed in House Crow and Black Kite. The flight activity of bird species was found to be lower in the risk zone, which indicates species might have adapted to these long-established power lines. The height of the transmission tower obstructed the flight movements of birds, especially for large-bodied species, such as Lesser Flamingo and Greater Flamingo and were highly susceptible to power line collision. However, during our carcass surveys we did not find any dead birds.

The study sites are under the constant influence of tidal cycles as a result, there was a high chance of missing carcasses. Thus, we were unable to detect any dead birds during the survey. However, there is a high probability of risk of bird collisions with power lines, requiring more management interventions. Based on field observations and a review of the literature, we recommend installing two types of bird flight diverters along the transmission line, which are expected to reduce the threats posed by power lines. To understand the effectiveness and durability of recommended bird diverters continuous monitoring is required over different seasons in this area.

