SACON Report # PR 193

IMPACT OF DEVELOPMENTAL PROJECTS LIKE ROAD WIDENING ON THE BIRD POPULATION OF GULBARGA CITY

Final Report submitted to Karnataka Forest Department

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Sálim Ali Centre for Ornithology and Natural History
A Centre of Excellence under the Ministry of Environment, Forest & Climate Change,
Govt. of India. Anaikatty (PO), Coimbatore, – 641 108

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ACKNOWLEDGEMENTS

The present study could be conducted within limited time and resources only with the active support of various people and agencies. We are thankful to all those directly and indirectly conttibuted to this study. We sincerely thank Mr. Sivasankar, S., IFS, Deputy Conservator of Forests, Gulbarga division, for his enthusiastic support throughout this study. Mr. Sivasankar and his team of officers are highly acknowledged for the excellent hospitality and logistic arrangements for our team's travel and stay at Gulbarga. The Karnataka forest Department is acknowledged for the funding support provided for the study.

We are also thankful to Dr. K. Sankar, Director, SACON for all his support and guidance. His critical comments and inputs on the earlier drafts of this report was highly helpul in improving the final report. Mr. Mohamed Ibrahim, N. of ENVIS centre, SACON is acknowledged for kindly providing the GIS maps used in the report.

Authors are also thankful Mr. Mohammed Moiuddin, (Chincholi Wildlife Sanctuary), Dr. Rajah Jayapal (Principal Scientist, SACON) and Mr. Muthukumar (L&T, Gulbarga, Karnataka) for their help in successfully completing this study.

(Authors)

EXECUTIVE SUMMARY

Impact of developmental activities on urban biodiversity is an important aspect of urban ecology that often gets neglected. Negative ecological impacts of linear intrusions, such as roads are increasingly being recognized and reported from different parts of the world (Fahrig and Rytwinski, 2009; Forman and Alexander, 1998; Spellerberg and Morrison, 1998; Rajvanshi *et al.* 2001, Rajvanshi & Mathur 2015). At the request of the Karnataka Forest Department, SACON undertook a study to evaluate avifauna in the proposed area of road widening, along the ring road around the Gulbarga city, Karnataka. During November 2017, we documented the avifauna through extensive bird surveys along the ring road as well as from other major green areas of the city. The study documented the avifauna composition of the overall Gulbarga city with special reference to evaluation of the role of roadside trees along the proposed stretch of road widening in supporting the Avifauna. The past data from the area was also collated from secondary sources (www.ebird.org) for the preparation of final checklist.

With a total of 162 bird species (including secondary information) Gulbarga city is rich in its avifaunal community. During the surveys as part of the present study, 114 bird species, belonging to 16 orders and 51 families, were recorded from Gulbarga. The present study was limited to a single season survey and the past records of additional bird species reported from the city were also collated from authentic secondary sources for the generation of final checklist for the city.

Road widenings do impact the environment especially when there is wilderness and associated biodiversity along the road edges. Direct impacts such as road kills and indirect impacts such as habitat loss and fragmentation are the major impacts from road projects.

The bird fauna recorded along the edges of the ring road were mostly common species with no threatened species as per International Union for Conservation of Nature (IUCN). Despite intensive surveys and higher number sampling points (n=52)

from the ring road area, only 47 species were recorded from the ring road area during the study.

The bird assemblage of Gulbarga city was dominated by Passeriformes that contributed 62% of the total 114 species sighted. Of the 114 birds, 89 were resident, 22 winter visitors, 2 passage visitors and one summer visitor to Gulbarga. Sixty-six species of birds were recorded from the wetland habitats of the city. From the Sharana Basaveshwara Lake, situated in the middle of city alone, we recorded 43 species of birds. The Gulbarga fort with a mix of dry grassland, deciduous and human-associated habitats had 40 bird species sighted.

Forty-seven species of birds (belonging to 10 orders, 31 families and 46 genera) were recorded from the Ring road stretch. Totally, 1,194 individuals of birds were sighted during the surveys. The most abundant bird species recorded was Rock pigeon, followed by Cattle Egret, Rosy Starling and Little Swift.

The diversity of trees present along this stretch was found to be low with only 14 species. Most of the trees were small in size with 75% having less than 01 m GBH and 99% less than 02 m GBH. The Neem (*Azadirachta indica*) trees dominated with over 75% of all road-side trees. These trees were not found to be preferred for nesting or roosting by the birds. The comparatively low species richness and small size of the trees were the possible reasons for the poor bird fauna found associated with the road-side trees along the ring road. Compensatory tree plantation along the road edges with increased proportion of species of native local tree species is suggested. Species such as *Mangifera indica, Ailanthus excelsa, Bauhinia spp., Dalbrgia sissoo, Ficus religiosa, Syzygium cumini, Muntingia calaburra, Millingtonia hortensis, Nyctanthus arbor-tristis, Peltoforum pterocarpum, Plumeria spp.,* and *Polyalthia longifolia* are suggested to help in enhancing the tree diversity and mitigating the impact from the loss of trees due to road widening.

Because of the short duration of the study, covering only single season, the species richness and abundance of the birds reported here is not complete and is a major limitation of the study. The present results help in establishing baseline information

on avian composition and diversity of Gulbarga city. Further detailed systematic studies with regular bird surveys covering all seasons of the year would be essential to provide complete checklist of Gulbarga city birds.