Abstract: A short duration observation on birds' nesting in an abandoned bungalow premise in the heart of Palayamkottai, Tirunelveli district in Southern Tamil Nadu is reported as a case study. Three species of water birds namely Black-crowned Night Heron (Nycticorax nycticorax), Intermediate Egret (Mesophoyxin termedia), and Little Cormorant (Phalacrocorax niger) were found to show mixed roosting. Recently infrastructural modification of the premise was undertaken, which influenced the nesting site of these colonial birds, considering their high sensitivity to disturbance.

Keywords: Abandoned sites, Nesting, Tirunelveli, Urban birds.

INTRODUCTION

Birds, the masters of air are warm-blooded egg-laying vertebrates characterized by the presence of feathers and modification of forelimbs as wings for flight (Verma and Prakash, 2020). Urban habitats and landscapes are markedly diverse from non-urban 'natural' habitats. The significant difference is the transformation of landscapes to anthropogenic structures from natural green areas (Isaksson, 2018). To survive in urban habitats, birds are forced to accept or avoid the new conditions. Out of 10,000-plus bird species, around 2000 (nearly 20%) species occur in metropolia (Aronson et al., 2014). Birds in urban geographies inhabit abandoned structures to make their nests. Plantations of invasive plant species, managed lawns, and removal of the mid-story canopy are considered signs of urbanization (Luck and Smallbone, 2010; Aronson et al., 2014). Urbanization is a remarkably complex phenomenon with various dimensions (Hussain and Imityiaz, 2018). Due to this complexity, urban avifauna is often reported to display contrasting behaviour, physiology, and morphology compared to rural conspecifics (Isaksson, 2018). Behavioural plasticity is critical to permit species to coexist with humans. Based on their dependency on human resources, birds are divided into three groups: urban avoiders, urban (suburban) adapters, and urban exploiters (Blair, 1996; Diogo et al., 2017).
Anthropogenic activities badly influence both the flora and fauna (Prakash and Verma, 2022) including bird populations both small scale (construction, pollution, hunting) and large scale (climate change). Despite challenges, the persistence and expansion of avifauna in urban centres offer opportunities to understand adaptation to urban living and the development of urban spaces as conservation areas (Reynolds et al., 2019). Also, urban habitats are deemed as environs for studies of population divergence, evolutionary responses, and speciation in real-time (Isaksson, 2018). A number of literature related to threats, initiatives, and adaptation to nesting in birds are available from different parts of the country (Prakash and Verma, 2016a, 2016b; Surya, 2016; Verma and Prakash, 2016, 2021; Sohil and Sharma, 2020; Panda et al., 2020).

**BIRDS NESTING IN ABANDONED SITES**

The present case study is concerned with an abandoned Mayor Bungalow premise (coordinates 10.8627492, 75.6564881) in the heart of Palayamkottai, Tirunelveli district in Southern Tamil Nadu, India (Map 1). The community has numerous water bodies that attract local avifauna and migratory species.

Authors saw three species of water birds namely Black-crowned Night Heron (*Nycticorax nycticorax*), Intermediate Egret (*Mesophoyx intermedia*), and Little Cormorant (*Phalacrocorax niger*) and decided to study as a case. Authors noticed that these birds exhibit communal/mixed roosting *viz.*, nesting on trees present in the site. Of the three species, both the night heron and little cormorant roost in small (5-20 individuals) or medium in size (several tens of individuals)
and exhibit communal roosting throughout the year (Gadgil and Ali, 1974). While, Intermediate Egret is either highly colonial or nests singly, nesting in mixed-species colonies of other herons, spoonbills, ibises, and cormorants (Heron Conservation, 2022). The closest water body less than a kilometre that supports water birds is the Elanthakulam Lake (10.8581839, 75.6570304) (Fig.1). Other avifauna inhabiting the zone was also recorded during the observations made between August 18th- 31st, 2018 (Fig. 2-15). The garbage dump around the site provided a feeding niche for scavengers (House crow) and predatory raptors (Shikra).
Fig. 6: Red-vented Bulbul, *Pycnonotus cafer*.

Fig. 7: Common Myna, *Acridotheres tristis*.

Fig. 8: Spotted dove, *Stigmatopelia chinensis*.

Fig. 9: Common Tailorbird, *Orthotomus sutorius*.

Fig. 10: House sparrow, *Passer domesticus*.

Fig. 11: Black-crowned Night Heron, *Nycticorax nycticorax*.

Fig. 12: Intermediate Egret, *Mesophoyx intermedia*.

Fig. 13: Little Cormorant, *Phalacrocorax niger*.
Three hundred seventy-seven (377) species were reported from different parts of Tirunelveli District (E bird, 2022) and a survey in 2018 reported a flock of greater flamingos at Vijayanarayanam tank near Nanguneri in the district (Anonymous, 2018). Recently in the year 2021, infrastructural modification of the premise was undertaken, which probably could impact the nesting site of these colonial birds, considering their high sensitivity to disturbance (Fig. 16). Considering the fact that different birds have different tolerant levels to disturbance, the urban specialist (exploiter and adapters) species are better adapted to exploiting anthropogenic resources (food and nesting sites). However, it would be challenging for water birds to use the site under construction for ephemeral nesting in the vicinity of the water resources. Future observations will entail if they have adapted or avoided the site.

CONCLUSIONS
Existing urban areas are expected to intensify and expand in the future. Many bird populations worldwide are plummeting due to the impact of human activities. As a proactive initiative, concerned authorities and citizen scientists can monitor this shift in nesting sites in areas like the present study site expecting a change in infrastructure and land use. Additionally, creation of visual and practical guides for community-led avi-tourism to establish an emotional connection with urban wildlife is strongly suggested.

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