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## SHORT COMMUNICATIONS

### STATUS SURVEY AND CONSERVATION OF THE HOUSE SPARROW *PASSER DOMESTICUS* (AVES: PASSERIFORMES: PASSERIDAE) THROUGH PUBLIC PARTICIPATION IN KANNUR, KERALA, INDIA

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## STATUS SURVEY AND CONSERVATION OF THE HOUSE SPARROW *PASSER DOMESTICUS* (AVES: PASSERIFORMES: PASSERIDAE) THROUGH PUBLIC PARTICIPATION IN KANNUR, KERALA, INDIA

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**Abstract:** House Sparrows *Passer domesticus* are one of the most widespread passerines in the world. A survey was conducted to find out their status in Kannur District, Kerala. The survey recorded 553 sparrows in 35 sites in the district. The perspectives of the public were recorded through a questionnaire survey and conservational inputs from the public were noted. Most of the respondents (47%) suggested the provision of nest boxes for the enhanced breeding of sparrows. Thus, our NGO along with the support of students, the public and the Kerala Forest Department, placed 100 nest boxes in various identified sparrow dwelling places in the district and it was found effective in the conservation of sparrows.

**Keywords:** Conservation, environment, House Sparrow, nest box, threat.

House Sparrows *Passer domesticus* (here after sparrows) are one of the most widespread passerine species in the world facing a serious decline in their

population (Crick et al. 2002; Prowse 2002; Olsen et al. 2003; Robinson et al. 2005; Vincent 2005; Klok et al. 2006; Balmori & Hallberg 2007; Bohner & Witt 2007; De Laet & Summers-Smith 2007; Murgui & Macias 2010; Kekkonen et al. 2011). Similarly, there were reports of a population decline in India (Daniels 2008; Rajashekar & Venkatesha 2008; Bhattacharya et al. 2010; Dandapat et al. 2010; Ghosh et al. 2010; Khera et al. 2010; Dhanya 2011; Sethi & Vashisth 2013).

Urbanization and industrialization, leading to the loss of suitable foraging locations and nesting spaces in urban and rural areas has contributed much to the declining sparrow populations (Cramp et al. 1985; Rao 2000; Summer & Smith 2003; Robinson et al. 2005; Pineda et al. 2013). Besides, many reasons have been suggested for the decline of sparrow populations such

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**Competing interests:** The authors declare no competing interests.

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as lack of old fashioned buildings and weedy gardens (Monika 2005), changes in agricultural practices, predators (Summers & Smith 2003; Vincent 2005; Shaw et al. 2011), competitions (Vincent 2005; Khera et al. 2010, Mason 2006), disease (Vincent 2005), environmental pollution (Chamberlain et al. 2005; Vincent 2005; Balmori & Hallberg 2007; Dhanya 2011), electromagnetic radiation (Balmori & Hallberg 2007), lack of insect availability, nest sites, substratum, nesting materials, food items and roosting sites (Chamberlain et al. 2005; Vincent 2005; Mason 2006; Bohner & Witt 2007; Klok et al. 2008; Dhanya 2011). Use of unleaded fuel results in methyl nitrite during combustion, which is harmful for soft-bodied insects, as they form the major diet for sparrow chicks. This was also suggested to be a threat for sparrows (Summer-Smith 2007).

Hopping near grocery shops, picking up fallen grains and clearing out insect pests, they were once common sights in our markets and urban areas. The birdwatchers and nature enthusiasts in the district were concerned about the decline in one of the commonest urban birds. Also, no studies in the population of sparrows were conducted in Kannur District. Hence this study was taken up by an NGO, the Malabar Awareness and Rescue Centre for Wildlife-Kannur, aimed at documenting

sparrow populations in the district, the threats faced, the perception of the public towards sparrow conservation and possible conservation action.

## MATERIALS AND METHODS

A press release was published in all leading newspapers in the district (with the details of the project and contact numbers of the volunteers) to identify the potential sparrow inhabiting areas in Kannur District (Fig. 1). The areas communicated by the respondents were visited during 08:00–11:00 hr and 15:00–18:00 hr and the numbers of sparrows sighted were recorded using point count method (Bibby et al. 1998) from March to July 2015.

An open-ended type questionnaire survey was done in markets, rural and urban towns in the district, targeting shop keepers, workers, and the local people. All the respondents were between 35–55 years old. The questionnaire survey was conducted in the local language (Malayalam).

## RESULT AND DISCUSSION

### Status of sparrows in Kannur District

A total of 35 sites were surveyed and 553 sparrows were recorded in Kannur District (Fig. 1). Compared to



Figure 1. Map showing the study area, Kannur, Kerala.

urban towns, more number of sparrows were found in smaller towns and in rural areas as reported earlier. Among the 140 individuals interviewed 89% stated to have seen the sparrows earlier (in the past), but only 56% of the people stated to have seen them in the present. This indicated that 33% of the respondents had seen the sparrows earlier but not at present. Hence, this data suggested that there has been a decline in the populations of sparrows in the district.

**Perspective of public regarding sparrows**

Sparrows are generally believed to be useful to the public (Fig. 2). As major pest control agents, they pick up insects and worms (39%) from food grains; they clean the surroundings by pecking on thrown out food materials (21%) and maintain an ecological balance (15%). Hence, they were believed to play a vital role in maintaining the health of the ecosystem. Twenty percent of the respondents felt that sparrows have an aesthetic value due to their cheerfulness and tweeting sounds to make the surroundings lively, and some respondents (5%) believed that sparrows were a good omen when they nest in their shops. Only faecal droppings and accidental hits on fans were noted as a menace caused by the sparrows. Thus, people had different perspectives on the sparrows, in terms of economic, aesthetic, ecological and belief values.

Different reasons were suggested by the public for the declining number of sparrows in the district (Fig. 3). Electromagnetic radiations from the mobile towers

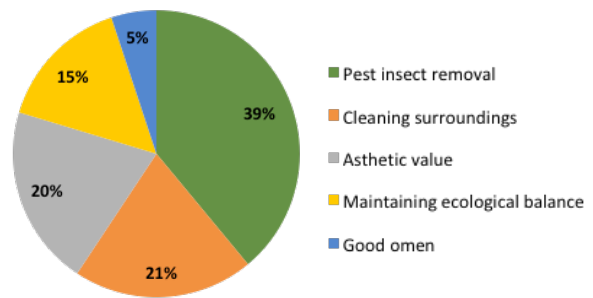


Figure 2. Percentage composition of suggested usefulness of sparrows

were the most suggested reason (35%), even though no proper scientific validation is available in this context (Balmori & Hallberg 2007). Other important reasons were climatic changes and its associated temperature rise (13%) (Global warming is known to affect physiology in House Sparrows (Yom-Tov, 2001)), modernization of buildings (9%) leading to a lack of nesting spaces. Cutting down of roosting trees and plants (6%) in towns had also caused decline in the population of sparrows, as they are known to roost in small and medium sized trees (Dhanya & Azeez 2010). Natural reasons like predation and reproductive problems might also have affected the population. Changes in grain storage practices like plastic bagging of grains to minimize spilling out and spoilage, use of pesticides and chemicals in grains, pollution, decreased ration/grocery shops (which might have reduced food availability causing a scarcity of food

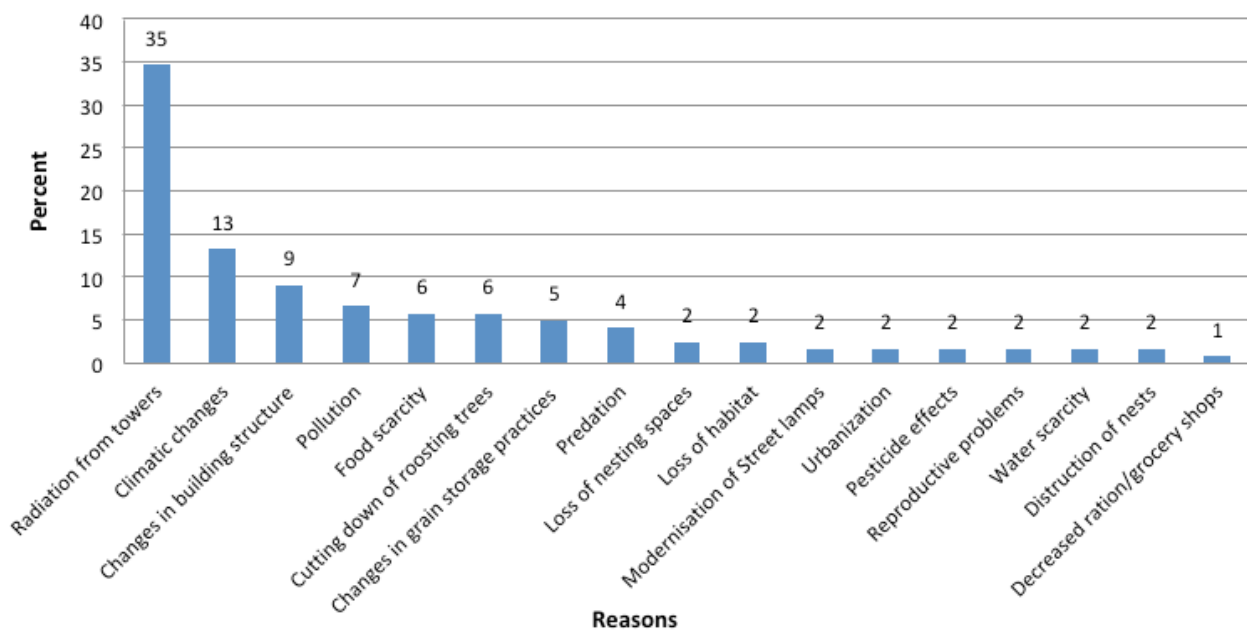
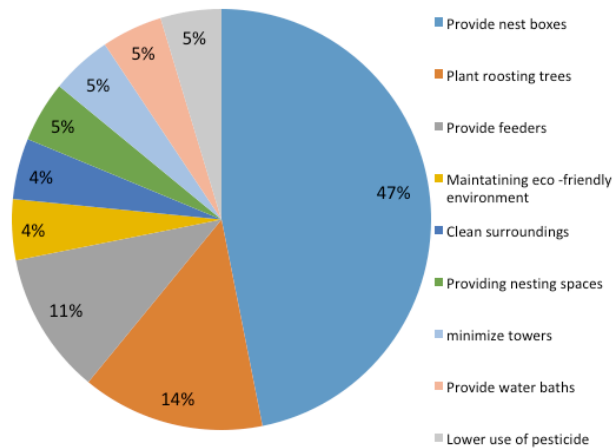


Figure 3. Reasons suggested by the public for the decline in sparrow numbers in Kannur





**Figure 4. Percent composition of public suggestions for sparrow conservation in Kannur**

for the birds), water scarcity, the destruction of nests and the loss of habitat and nesting spaces due to urbanization (Bokotey & Gorban 2005), had decreased the endurance of sparrows in towns. These were the other reasons suggested by the public in the questionnaire survey.

Various conservational plans were suggested by the respondents (Fig. 4) of which the provision of nest boxes (47%) were the most recommended suggestion to enhance sparrow population. Also, spaces for sparrow nesting have been thought of during modernisation of buildings; especially in towns (5%). Planting roosting trees (14%) of small heights of less than 5m are found to support and host good numbers of roosting sparrows (Dhanya & Azeez 2010). Provision for feeders with grains (11%) and water bath (5%) could also help to regain sparrow population. Other suggestions (13%) were to maintain eco-friendly and clean environments by minimizing pollution and by reduced use of pesticides. A section of respondents who believed mobile towers to be the major cause of the decline in the population, had suggested to minimize construction of mobile towers (5%) as well.

#### Efforts for conservation of sparrows

During the study, students and the public were involved in population assessment of sparrows in the district. Awareness programs were conducted in local colleges and schools to educate students about the importance of sparrows. Mass participation of public was assured by conducting sparrow photography competitions, during which the public had spent time to watch and observe sparrows in the city.

Sparrows are expected to build nests in any available places including nest-boxes (Shaw et al. 2008) and

studies showed that artificial nest boxes can enhance the population of sparrows in urban and sub-urban areas (Chethan 2012). Hence, with the preliminary knowledge of the status of sparrows in the district and with the suggestion from the public, we decided to create and fix nest boxes for sparrow conservation. A total of 100 wooden nest boxes were fixed in identified sparrow inhabiting sites in the district, which later was found to be effective. Hence with this preliminary study, we were able to map out some of the sparrow population in the district and understand its status and potential threats. Moreover, the project had created a network of students and members of the public who stood for conservation of sparrows in the district. Furthermore, with the continuous support from stake holders, we could create a bigger network of public, students, shopkeepers, vegetable sellers, etc. who can be utilized to monitor the sparrow population. Along with provision of more nest boxes and by planting short roosting trees and maintaining urban gardens, sparrow population in the district could be enhanced.

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