

On the Decline of Population of the House Sparrow in Urban Areas of India

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House sparrow, *Passer domesticus* (Linnaeus, 1758), a small bird locally known as 'Chorui' in India is closely associated with human habitation and cultivation from historic times (Bhattacharjee et al., 2011). Close symbiotic association with the human has driven them to be dependent on human environment. Being colonial nesters, decrease in sparrow colony size inhibits breeding of remaining individuals (Summers - Smith, 2003). Due to its wide range of distribution even in the hilly region (up to 4000m in the Himalaya) and sensitivity to the changing environment, it was preferred as indicator species for monitoring the urban ecosystem (Hussain et al., 2014). As nesting materials house sparrow prefer grass, straw, jute threads, leaves, weeds, feathers (Balaji et al., 2013; Kumar et al., 2015) to build their nests in the crevices of thatched roofs of old houses, electric pipelines, in ventilation holes etc (Ali, 1996). The other detrimental factors are shortage of food supply and less green vegetation on breeding grounds in urban or peri-urban areas (Hussain et al., 2014). These birds never use shrubs or trees for nesting (Kumar et al., 2015). Significant numbers of nest were recorded within very close proximity to food shops and water resources (Nath et al., 2016).

It was suggested that the vanishing of the sparrows from urban-metropolitan areas to peri-urban and rural areas for survival clearly indicates that urbanization has a direct effect on the decline of sparrow population (Modak, 2015). Many have made effort to find out the reasons of this decline. Negative relationship between urbanization and house sparrow population is pronounced in planned city (Ghosh et al., 2010). This coincides with the view that most severe trend of population decline of house sparrow is found in areas of high socio-economic status, while it's relatively stable in low income areas (Dandapat et al., 2010). With increasing urbanization all the birds species including house sparrow are facing the scarcity of resting as well as nesting places in metropolitan area (Chakraborti, 2015).

Factors like predation, pesticides, pollution and electrosmog have been added by Kumar et al. (2015) as effective

contributors to the population decline. A possible link of urban decline of house sparrow population with electromagnetic radiation for affecting the eggs was also suggested (Balmori & Hallberg, 2007). It was reported that long-term exposure to low-intensity electromagnetic radiation from mobile phone had resulted in reduction in number of house sparrow especially the males (Everaert & Bauwens, 2007). The long duration exposure may affect the immune system of all of the birds which increases the chance of microbial infection (Balmori, 2009). Even tall tower height has significantly negative influence in disorientation of many birds including house sparrow (Vijay & Sushma, 2015).

Another cause may be the modern lifestyle. In urban areas the houses have been converted into RCC from the conventional tiled roofs for compatibility with the air condition which are devoid of any crevices or holes or ventilators. For survival, nesting in open areas has made house sparrow population susceptible for human disturbance and predator attacks (Anandam et al., 2014; Kurhade et al., 2013). House Sparrow was one of the depredataory grainivorous species for rice, pearl millet and pulses (Kamath et al., 2014). In big cities and growing urban areas, modern departmental stores have been flourished replacing local roadside corner shops and roadside pice hotels which provide everything in packed pockets within closed door environment causing little chance of spill of grains on the roads which might result in shortage of food supply for the house sparrow (Balmori & Hallberg, 2007).

When any population is under stress detrimental factors in the environment badly affect the populations to cause local extinctions and ultimately in course of time which leads to the large scale decline (Singh & Kler, 2015). Awareness for environmental consciousness in urban areas and proper planning and management programme for improving the environmental health in urban areas can continue the scenario of co-existence in harmony; otherwise it's not far away that we have to represent the common house sparrow as a fairy tale character to the next generation.

References

- Ali, S. 1996. *The Book of Indian Birds*. 1st edition, Oxford University Press, New Delhi.
- Anandan, G., Kumaresan, M., Thomas, A., Benickson, C., Devi, R. C., Geethu, M., Augustine, J., Kavipriya, J., Mithun, R. M. & Shiva, R. 2014. The House Sparrow is Homeless: A Small attempt to Conservation. *J. Biodivers. Endanger. Sp.*, 2 (2): 1-4.
- Balaji, S. Baskaran, S., Rajan, M. K. & Pavaraj, M. 2013. Investigation of the causes for the decline of house sparrow, *Passor domesticus* in Sivkashi Taluk, Virudhunagar district, Tamil Nadu, India. *J. Pure Appl. Zool.*, 1 (2): 160-166.
- Balmori, A. 2009. Electromagnetic pollution from phone masts—effects on wildlife. *Pathophysiology*. doi:10.1016/j.pathophys.2009.01.007.
- Balmori, A. & Hallberg, O. 2007. The Urban Decline of the House Sparrow (*Passer domesticus*): A Possible Link with Electromagnetic Radiation. *Electromag. Biol. & Med.*, 26(2): 141-151.
- Bhattacharya, R., Roy, R. & Goswami, C. 2011. Studies on the response of house sparrows to artificial nest. *Internat. J. Env. Sci.*, 1(7) : 1574-1581.
- Chakraborti, A. 2015. Increasing urbanization: A threat to the avian population. *Internat. J. Appl. Res.*, 1(8): 335-337.
- Dandapat, A., Banerjee, D. & Chakraborty, D. 2010. The case of the Disappearing House Sparrow (*Passer domesticus indicus*). *Veter. World*, 3 (2) : 97-100.
- Everaert, J. & Bauwens, D. 2007. A possible effect of electromagnetic radiation from mobile phone base stations on the number of breeding House Sparrows (*Passer domesticus*). *Electromag. Biol. Med.*, 26 : 63-72.
- Ghosh, S., Kim, K. & Bhattacharya, R. 2010. A survey on house sparrow population decline at Bandel, West Bengal, India, *J. Korean Ear. Sci. Soc.*, 31(5) : 448-453.
- Hussain, A., Dasgupta, S. & Bargali, H. S. 2014. Case of house sparrow (*Passor domesticus*) population decline: Role of semi-noadic pastoralist community (Van) in their conservation. *Internat. J. Conserv. Sci.*, 5 (4) : 493-502.
- Kamath, V., Mathew, A. O. & Rodrigues, L.L.R. 2014. Indian sparrows on the brink of extinction: population dynamics combined with ecological changes. *Internat. J. Renew. Energy & Env. Engng.*, 2(1): 17-22.
- Kumar, A., Kanaujia, A., Kushwaha, S. & Kumar, A. 2015. A house for the house sparrow. *Sci. Reporter*, June Issue: 14-19.
- Kurhade, S., Kshirsagar, J., Wagh, P. & Kasar, R. 2013. Habitat wise distribution of house sparrow (*Passer domesticus indicus*) in Parner tehsil of Ahmednagar district, Maharashtra, India. *Europ. J. Exper. Biol.*, 3(4): 194-197.
- Modak, B. 2015. Impact of Urbanization on House Sparrow Distribution: A Case Study from Greater Kolkata, India. *Proc. Zool. Soc.* doi: 10.1007/s12595-015-0157-4.
- Nath, A., Singha, H., Dev, P., Das, A.K. & Lahkar, B.P. 2016. Nesting in a crowd: Response of house sparrow towards proximity to spatial cues in commercial zones of Gauhati city. *Proc. Zool. Soc.*, 67 (2): 249-254.
- Singh, K. & Kler, T. K. 2015. Breeding Ecology of House Sparrow (*Passer domesticus*) in Natural and Artificial Nests at Ludhiana, Punjab. *Indian J. Appl. Res.*, 5 (11): 500-502.
- Summers-Smith, J. D. 2003. The decline of house sparrow: A review. *British Birds*, 96: 439-536.
- Vijay, S. & Sushma, A.H. 2015. Study on Electromagnetic Radiation from Cell Phone Towers and Their Effects on Animals, Plants and Environment. *Internat. J. Innov. Res. Computer & Comm. Engng.*, 3 (7) : 370-374.

Conference

Forestry Conference in India after 50 years' gap

Thirty-nine Commonwealth member countries deliberated on some of the grave issues affecting climate and green cover at the Nineteenth Commonwealth Forestry Conference held at Forest Research Institute (FRI), Dehra Dun, from April 3 onwards.

The conference was last held in India almost 50 years ago, in 1968, in New Delhi. Some 700 participants, including experts, scientists, forest officials and NGOs from India and other member countries, made 470 presentations on climate change, forest fire, community participation and ways to improve forest productivity and green cover, during the course of the five-day long event. Governor K. K. Paul inaugurated the conference which was being organised on the theme 'Forest for Prosperity and Posterity' in consonance with Aichi targets of the UN Convention on Conservation of Biological Diversity and Sustainable Development Goals. FRI director Dr Savita organised the decision to hold the event, which was being held in collaboration with the Ministry of Environment, Forest and Climate Change, Govt. of India.