



ORIGINAL ARTICLE

A Review on Dangers for Birds Population in Cities with Special Reference to Sparrow**Gargi**

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Received: 7th Nov. 2017, Revised: 5th Dec. 2017, Accepted: 9th Dec. 2017**ABSTRACT**

About one in eight bird species is threatened with global extinction due to factors such as the expansion of agriculture, logging, invasive species, hunting, and climate change, according to a new report from the conservation group Bird Life International. Overall, 40 percent of the world's 11,000 bird species are in decline. The report, *The State of the World's Birds*, compiled every five years, finds that the populations of even once-widespread, easily recognizable species including puffins, snowy owls, and turtle doves are rapidly declining and facing global extirpation. Threats driving the avian extinction crisis are many and varied, but invariably of humanity's making. These reasons are sufficient to point out and collected the responsible factors for decline of birds in cities in the present review article.

Key words: Bird population, Sparrow, Global extinction

BIRDS ARE IN DANGER

Agriculture has the biggest impact of all human activities on birds, threatening 74 percent of the 1,469 species at risk of extinction. Logging impacts 50 percent of the threatened species, invasive species 39 percent, hunting 35 percent, and climate change and severe weather 33 percent. Other threats include development, wildfires, energy production and mining, and pollution. The report did provide some good news. Conservation efforts have helped rebuild the populations of red-billed curassows, pink pigeons, and black-faced spoonbills, for example. For many species, it wouldn't take much to reverse their declines, the report said. (Source: Yale School of Forestry & Environmental Studies). For instance The snowy owl (*Bubo scandiacus*) is one of many familiar bird species that now find themselves globally threatened with extinction.

The threats leading to population declines in birds are many and varied: agriculture, logging, and invasive species are the most severe, respectively affecting 1,126 (77%), 763 (52%) and 473 (32%) globally threatened species. These threats create stresses on bird populations in a range of ways, the most common being habitat destruction and degradation, which affect 1,354 (93%) threatened species. There are a number of threatening processes driving declines in bird populations. Foremost among them are the spread of agriculture which puts 1,126 threatened birds (77%) at risk, logging and wood harvesting impacting 763 species (52%) and invasive species which threaten 473 (32%) of threatened species (Bird Life International 2016). In addition, residential and commercial development, hunting and trapping, livestock and ranching, and climate change are having serious negative impacts (see figure). While all of these threats have additive negative effects on species, climate change in particular often exacerbates other threats. All of these threats are taken into account in the IUCN Red List evaluation of species and contribute to their classification as globally threatened (Critically Endangered, Endangered or Vulnerable). High-impact threats affect the majority of the population and cause rapid declines, while low-impact ones affect the minority and cause slower, albeit still significant, declines. These threatening process impact species' populations in a number of ways (see figure). Habitat destruction and degradation (driven by anthropogenic activities like logging and agricultural expansion) currently impacts 1,354 threatened birds (93%), while direct mortality and reduced reproductive success resulting from many of the processes listed above are affecting 54% and 33% of threatened species respectively (Bird Life International 2008). Some threats can be reversed given enough resources, so targeted actions have been recommended for all threatened birds to directly address specific threats. When species populations become very small, even stochastic, unpredictable events like natural disasters (e.g. volcanoes, cyclones, drought) or pressure from problematic native species

(e.g. increased competition or hybridisation) become very difficult to combat. Within healthy populations these threats may be more benign.

The 2018 State of the World's Birds, released in April, finds that nearly 40 percent of bird species throughout the world are in decline. The comprehensive report, produced every five years by BirdLife International, documents worldwide trends in bird populations. There are now 1,469 bird species globally threatened with extinction—One out of every eight bird species worldwide, according to the report. This represents an increase of 40% since the group's first global assessment of threatened species in 1988. Many familiar birds from around the world were highlighted because of rapidly decreasing populations, including Snowy Owl, Atlantic Puffin, European Turtle-Dove, and several species of Old World vultures. Topping the list of the biggest threats to bird populations, based on number of species affected, are agricultural expansion and intensification, followed by deforestation, invasive species, and hunting and trapping. "The threats driving the extinction crisis are many and varied, but invariably of humanity's making...and most species are impacted by multiple, interrelated threats," cautions the report. Addressing these underlying causes is challenging and requires radical changes to the way we run our global economies and live our individual lives, yet it is essential if the impending biodiversity crisis is to be averted (2018 Global Report: 40% Of World's Birds Are In Decline By Marc Devokaitis, June 13, 2018).

After the disappearance of sparrows from the country's urban landscape, the focus has now turned to the population of the common Indian house crow. Paul R. Greenough, professor of Modern Indian History and Community and Behavioural Health, University of Iowa, the U.S., who is studying the decline of common Indian house crows or *Corvus splendens*, is doing significant work in this field. "Unlike tigers and elephants, Indian house crows eschew the jungle for villages and towns; in fact, house crows are India's most persistent companionate species and have always flourished side by side with humans in villages and cities. Yet, crows have recently begun to disappear", he said during his talks on 'Indian Crows in an Urban Context: Environmental history of a companionate species'. "While biologists usually blame falling bird numbers on over-hunting or habitat loss or industrialisation, such pressures do not weigh unduly on house crows, which are never hunted, often indulged and hand-fed and frequently worshipped," he said.

The House sparrow and its subspecies are worldwide in their distribution, except in the polar regions. Sparrows have had a symbiotic relationship with humans for the past 10,000 years. Poets have sung of their trust and love for each other in all languages. But strangely, over the past 50-60 years, sparrows have been sadly deserting human company in urban areas, preferring suburban areas and the countryside, and only making brief visits to nearby human habitats. So bewildering and absolute was their alienation that in 2002, sparrows were included in the IUCN Red List of Threatened Species in the U.K. and since 2010, March 20 has been adopted as World Sparrow Day. In 2012, Delhi adopted the House sparrow as its State bird.

Sparrows, though tiny, are very sensitive and strongly immune birds, and their sudden disappearance as sentinels or as ecological indicators is a warning to humans about impending environmental hazards. Several speculations have been put forward to account for sparrows deserting our cities, but they all boil down to the simple fact that the rapid changes in the lifestyles of humans in urban areas are increasingly incompatible with the conservative lifestyles of sparrows.

Non-availability of tiny insects as food due to the loss of vegetation around our modern buildings, the excessive use of mosquito repellents indoors and insecticides outdoors, our concrete architectures with no nesting sites for sparrows, and air-conditioning which leaves no entry or exit points for feeding sparrow nestlings are some of the reasons for the dislocation of sparrows. Further, increasing noise from automobiles and their gaseous pollutants in our cities may be deterrents. Above all, the recent increase in electromagnetic radiations from cell phone towers outdoors and the explosive use of diverse wireless devices indoors have also chased away the birds. It could be the synergistic effect of all these environmental pollutants that has compelled sparrows to fly away from their long-trusted human companions.

The House sparrow in reality is but only one among the several other species of birds and biodiversity that have been declining in numbers for the past 60 years. The disappearance of

sparrows - as they are closest to humans - is however the most obvious. Sparrows, in fact, started disappearing from cities even before the advent of the cell phone radiations. Rachel Carson in her multi-award winning book, *Silent Spring*, published in 1962, warned the whole civilised world in a visionary way that insecticides were being used indiscriminately by illiterates from 1939 onwards and were tending to be “biocides” - killing not insects alone, but all life, even human lives, directly or indirectly. Unless all these “elixirs of death” as Carson calls them, are under check, sparrows, or for that matter any other species, cannot be prevented from reducing in numbers or becoming extinct.

Sparrows may not become extinct, but being resilient, they may migrate to safer zones, feed at public granaries, market places, ports and rail stations, nest at nearby sites and adapt to stabilise their population. As the famous evolutionist Charles Darwin said, “It is not the strongest nor the most intelligent that will survive but those that can adapt to changes.” Sparrows are so adaptive that “not one of them shall fall to the ground.” On the contrary, Edward O. Wilson, the Harvard visionary of biodiversity, is afraid that having annihilated the entire biodiversity on earth, humans, left alone like the child of divorced parents, may suffer a severe emotional shock of loneliness and enter what he calls the “Ereozoic Era” or the Age of Loneliness.



Fig. 1: House sparrow: the cute friendly bird species is on decline (Source: newsnation.in)



Fig. 2: Common Crow Is Also On Decline (Source- M.A. Sriram)

DECLINE IN SPARROW AND CROW POPULATION IN CITIES

The friendly chirp on the window sill will soon be a sight for sore eyes in Mumbai, as the innocuous sparrow is being wiped out from the urban jungle. 'A sparrow is to the city what a tiger is to the forest' can best sum up today's situation, signifying how sparrows are the bio-indicators of an urban environment, much like the tiger whose decline indicates a threat to the ecosystem. While no one can be singled out for the declining sparrow population, it is humans who are collectively responsible for it (Courtesy: Nature Forever Society), a crusader for the sparrow as well as other common flora and fauna in urban habitats. Through his non-governmental, non-profit organisation, he has been championing the cause of sparrows, by involving citizens in the conservation movement, especially in urban areas. An NFS initiative creating positive impact is World Sparrow Day, celebrated on March 20 annually, to raise awareness about conserving the sparrow population. So, why do we need to safeguard them, you might ask. Here are 10 reasons why we need to save the sparrow:

1. Decreased Number of Trees: It is common knowledge that more the number of trees, more the number of birds. The spike in the felling of trees in cities is a major reason why sparrows and other birds are facing a loss of habitat.

2. Decreased Cavity Nesting: The ubiquitous glass buildings of cities-the corporate dens-have replaced many older structures that were built with a façade that had nooks and crannies, even bricked roofs, which allow sparrows to nest. Cavities are important for birds like sparrows, mynahs, parakeets, etc. to make nests. For example this is one of the reasons why South Mumbai sees a comparatively larger sparrow population due to heritage and older buildings being preserved to date

3. Shortage of Native Plants: Native plants such as adalsa, mehndi and many others are outdone by fancy non-native ones like *Duranta erecta*, Dumb Cane and others as the trend of modern landscaping catches on. Native plants are the natural habitats of sparrows, providing them insects such as aphids to feed on. Sparrows need a diet of insects in their formative years to grow into healthy adults.

4. Absence of Hedgerows: Contemporary landscaping is also doing away with hedges, which are preferred by sparrows for nesting. Thick hedgerows are known to protect nesting birds such as the sparrow from predation.

5. Increased Use of Concrete: Sparrows are known to take two types of bath-one with water and one with dust. With the extensive use of concrete in cities, the species is unable to take dust baths.

6. Grocery Storage Techniques: Speaking of food, sparrows are known to feed on tiny grains like bajra, which were earlier freely available from pecking at gunny bags stored outside older-style grocery stores and even the grains spilled on the ground. Modern grocery stores with air-conditioning and plastic packaging take away any chance of finding food grains to feed on.

7. Chemical Fertilisers in Every Bite: Heavy use of chemical fertilisers leads to agricultural produce being laced by them, hence ruining the food of sparrows.

8. Mobile Phone Radiation: The electromagnetic fields and radiation created by mobile towers are known to affect sparrows, simultaneously indicating that the radiation is also harmful to humans. The effects range from damage to the immune and nervous system of sparrows to interference with their navigating sensors.

9. High Litter Index in Cities: There is a rise in the population of crows and stray cats due to the high litter index in Mumbai. Simply put, more the garbage, more the predators that prey on sparrows.

10. Superstitions: Last but not least, humans with their firm belief in superstitions are known to consume sparrows, as some believe the male species to be an aphrodisiac.

MEASURES TO CONTROL THIS DECLINE:

Adopt a nest box (surrogate cavity) and a feeder with the right kind of grain in it, to encourage sparrows to feed. This way, we provide them with a constant source of food. Plant native species of plants to help build a sparrow-friendly habitat and to espouse insect population. Set up a water bath, especially in summer, to allow the birds to drink and bathe. Spread the word and encourage friends and family to save the sparrow. World Sparrow Day, celebrated on March 20 annually, is an initiative of the Nature Forever Society. In less than four years, this popular event has been celebrated in more than 50 countries around the world; including in Europe and parts of South Asia. World Sparrow Day is not only about house sparrows. It includes all 26 species of sparrows found in the world.

OTHER SPECIES

Not only sparrows, but even crows are deserting Bangalore City. Their numbers have reduced drastically over the years, according to ornithologists and other experts. This, they say, is because of an increase in the number of buildings and disappearing. This review is about what is known about the special ecological requirements of the sparrows, crows, for example, its original habitat and geographic range, food requirements, and direct and indirect factors that probably influence the number of birds. Data on the demographics of other island populations of birds, though not perfectly analogous to the situation in India, are also considered in an attempt to estimate the probability of danger of extinction of sparrow and crows. Each endangered species presents its own array of questions that need to be answered before any action can be prescribed and taken. Although the questions can be general, the uniqueness of each species requires that some answers be specific. (National Academies Press (US); 1992)

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