



Beneficial Aspects of Garbage Dumping Ground of Palghar in Terms of Avifauna

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ABSTRACT

The aim of this paper is to find out the beneficial part of garbage dumping ground of Palghar in terms of richness of avifauna. The dumping ground is located about 4 kilometers away from the Palghar city. We have surveyed the avian fauna of this area from August 2015 to August 2016. We recorded total 33 species of birds belonging to 9 orders and 21 families. The migratory status of bird species showed that 23 (70%) were residence, 9 (27 %) residence migratory and 1 (3 %) migratory. Passeriformes is the dominating order in our observations which constituted 21 species of total birds observed in this period. The families Muscicapidae, Corvidae were found dominant with five, three species respectively. In this paper an attempt is being made to see the beneficial aspects of this dumping ground in relation to avian biodiversity.

KEYWORDS

Avifauna, dumping ground, Biodiversity

Introduction

City dumpsites are sites of municipal waste also known as tips, refuse dump, rubbish, garbage dump or dumping ground. City dumpsites are common sights in most cities of the world particularly in fast growing population. Most of these sites are located at the outskirts of the city. The origin of city dumpsites is traceable to natural and anthropogenic activities separately or combined. The municipal wastes are unwanted by-products of modern life generated by people living in urban areas; simply any substance that is discarded after primary use, and/or of no use, worthless and defective. The term is often subjective because what is term waste to one person may not necessarily be waste to another. On the other hand, unwanted materials that are recyclable are inaccurately classified as municipal wastes. Indiscriminate municipal wastes dot several parts of major cities in Nigeria, blocking motorways and making passage along highways and walkways difficult forming visible part of the general malaise of environmental degradation. According to Obianigwe (1998) the sites of decomposing refuse visible all over the commercial cities in Nigeria, are at worst a volcano waiting to explode. He added that the disaster could take the form of typhoid epidemic, cholera outbreak or even the bubonic plague. The challenges of city dumpsites' management and varying degrees of technical

problems and prospects are no doubt self-explanatory. For most city dwellers, impoverishment and environmental degradation are getting more acute because of the government's policy of privatizing the production and use of urban space and services without any consideration for improving the quality of life of the generality of ordinary citizens.

The condition of garbage dump in India is very peculiar and causing health hazards in their surrounding vicinity. The Deonar dumping ground of Mumbai is one of the oldest dumping ground of India operational since 1927. As of December 2014 the garbage heaps stands around 164 ft high. For days start-

ing January 28, 2016, a massive fire swept through Mumbai and about one lakh people live in close proximity to the dump are forced to breathe the toxic air. It is the similar story across Indian metros- of poor urban waste management leading to mounds of refuse. None of them meet the scientific requirements for a land fill and continue to operate beyond the expiry date.

The mental attitude of the two classes of city dwellers, the unconcern elite and the ignorant poor, constitutes a major obstacle to the effective implementation of existing waste management policies worldwide. The ignorant poor constitute a large percentage of the populace. The group is unfortunately under the condition of having to live with filth and myopically feel there is nothing they can do about waste around them. They lack the necessary empowerment to motivate the disposal authority or themselves into action. There is need to create a new sustainable development formula with the objective of safety which is in harmony with nature around city dumpsites. This could be achieved through participatory democracy, economic and ecological recovery, social justice and discipline that aims at preserving biodiversity. It is being suggested that the avifauna are important for the ecosystem as they play various roles as scavenger, pollinators and predators of insect pest, Padmavati *et al.*(2010). The bioindicators of different kind of environment like urbanization and industrialization disturbs the avian habitats, Bhattacharjee *et al.*(1985) and Sanjay (1993).

The primary purpose of this paper is to integrate the principles of ecology with the social and environment problems of society. The present study is carried out to find out the beneficial aspects of this dumping ground in terms of avian diversity and to create the awareness for their conservation.

Material and methods

Study Area and Location- The Palghar city is located on the north side of Mumbai and North-West side of Thane. Geo-

graphic coordinates of Palghar -Latitude: 19°41'48" N Longitude: 72°45'55" Elevation above sea level: 17 m = 55 ft. The Palghar dumping site is the main dumping ground used by the Palghar Municipal Corporation. This dumping site is located about a 4 kilometer away from the Palghar city. It is very near to Sonopant Dandekar College and Chaphekar College on the Kharekuran road.

Methods -The entire observations were conducted by rigorous field surveys all around the dumping ground. Observations were recorded by using Nikon Action 10x50 binocular and relevant photographs were taken by Canon 700 D. Birds were identified with the help of noting, standard methods given by Ali & Ripley (1969,1995), Ali(1996,2002), Grimmett *et al.* (1999), and Satish (2003).

Result and Discussion

Birds are considered as useful biological indicators because they are ecologically versatile and live in all kinds of habitats as herbivores or carnivorous. On the one hand birds are adopting themselves in the changed environment but on the other hand they are susceptible to the change in different ecosystems. Some birds are migratory, which are responsible for fluctuation in the population of birds that occurs during different season of the year, which may help to know whether an area is normal or getting polluted, as total absence of birds from any area may be considered as pollution indicator (Borale *et al* 1994).

The present study shows 33 different types of birds belong to 9 orders and 21 families from the dumping ground of Palghar. (Table 1). This is the first record of avian biodiversity from the dumping ground of Palghar municipal corporation, Maharashtra.

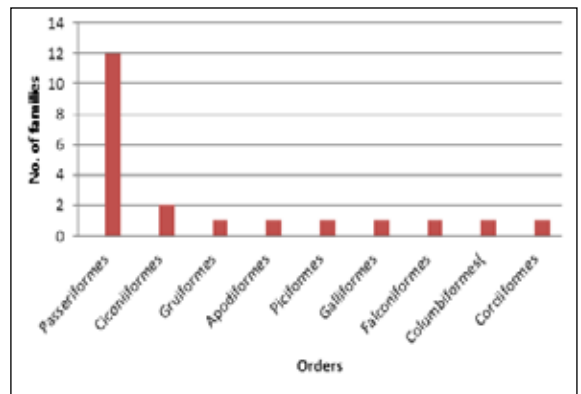
Table 1: Scientific check list of birds which were encountered on garbage dumping ground of Palghar

| Order | Family | Scientific name | Common Name | Habitat |
|----------------|---------------|-----------------------------------|---------------------------|---------|
| Passeri-formes | Muscicapidae | <i>Saxicoloides fulicatus</i> | Indian Robin | R |
| | | <i>Saxicola caprata</i> | Pied Bush chat | R |
| | | <i>Prinia sylvatica</i> | Jungle wren warbler | R |
| | | <i>Chrysomma sinense</i> | Yellow-eyed Babbler | R |
| | | <i>Orthotomus sutorius</i> | Tailor bird | R |
| | Motacillidae | <i>Motacilla flava</i> | Yellow wagtail | RM |
| | | <i>Anthus n.rufulus</i> | Paddy field Pipit | R |
| | Sturnidae | <i>Acridotheres tristis</i> | Common myna | R |
| | | <i>Sturnus pagodarum</i> | Brahminy myna | R |
| | Nectariniidae | <i>Nectarinia minima</i> | Purpal Sun bird | R |
| | Hirundinidae | <i>Hirundo daurica</i> | Redrumped swallows | RM |
| | | <i>Pycnonotus cafer</i> | Red vented Bulbul | RM |
| | Corvidae | <i>Dicrurus macrocecur</i> | Black drongo | R |
| | | <i>Corvus splendens</i> | House crow | R |
| | | <i>Corvus macrorhynchos</i> | Jungle crow | R |
| | Ploceidae | <i>Passerdomesticus indicus</i> | House sparrow | R |
| | | <i>Lonchura punctulata</i> | Spotted Munia | RM |
| | Monarchidae | <i>Terpsiphone paradisi</i> | Asian-paradise flycatcher | RM |
| | Laniidae | <i>Lanius schach erythronotus</i> | Rufous-backed Shrike | R |
| | Oriolidae | <i>Oriolus oriolus</i> | Golden oriole | RM |
| | Irenidae | <i>Aegithina tiphia</i> | Common lora | R |

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|---------------|---------------|--------------------------------------|---------------------------|----|
| Ciconiiformes | Ardeidae | <i>Egretta garzetta</i> | Little Egrets | R |
| | | <i>Bubulcus ibis</i> | Cattle Egret | R |
| | Ciconiidae | <i>Anastomus oscitans</i> | Asian open bill stork | RM |
| Gruiformes | Rallidae | <i>Gallinula chloropus</i> | Common Moorhen | R |
| | | <i>Amaurornis phoenicurus</i> | White Breast-ed water hen | R |
| Apodiiformes | Apodiidae | <i>Cypsiurus parvus</i> | Palm swift | R |
| Pici-formes | Capitonidae | <i>Megalaima haemacephala indica</i> | Coppersmith barbet | R |
| Galli-formes | Phasianidae | <i>Farncolinus pondicerianus</i> | Grey Partridge | R |
| Falconiformes | Accipitridae | <i>Milvus migrans govinda</i> | Pariah Kite | RM |
| | | <i>Circus aeruginosus</i> | Marsh Harrier | M |
| Columbiformes | Pteroclididae | <i>Columba livia</i> | Blue rock pigeon | R |
| Corciiformes | Upupidae | <i>Upupa epops</i> | Common Hoopoe | RM |

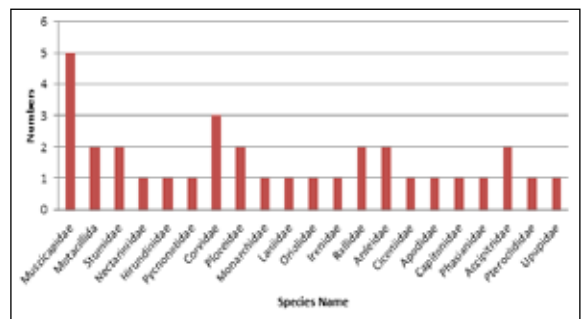
On the basis of orders, Passeriformes order (12 families) was maximum recorded and it was followed by orders Ciconiiformes (2), Gruiformes (1), Apidoformes (1), Piciformes (1), Galliiformes (1), Falconiformes(1), Columbiformes(1) and Corciiformes (1) Fig.1

Fig. 1 The Order wise Number of families on dumping ground of Palghar.



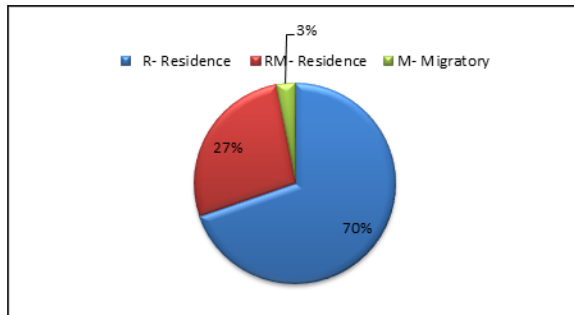
The family Muscicapidae, Corvidae were found dominant with five, three species respectively indicating the terrestrial moderately support birds followed by Motacillidae(2), Sturnidae(2), ploceidae(2), Ralliodae(2), Arcdeidae(2), Accpitridae(2), Pycnonotidae(1), Nectariniidae(1), Hirundinidae (1), Monarchidae(1), Laniidae(1), Oriolidae(1), Irenidae(1), Ciconiidae(1), Apodidae(1)Capitonidae((1),phasianidae(1), Pteroclididae(1) and Upupidae(1)

Fig.2 Fig. 2 The Family wise number of avian species diversity found on dumping ground of Palghar.



Out of these 23 (70%) were residence, 9 (27 %) residence migratory and 1 (3 %) migratory. (Fig. 3)

Fig. 3 Percent (%) status of birds on dumping ground of Palghar



As similar type of study was carried out by Oka *et al.* (2016) observed 136 birds at 6 dumpsites of Cross River State. Vikas Kumar (2015) recorded 99 birds' species in Vansda National Park, Gujarat. Kurhade (1991) recorded 51 bird species in Ahmednagar district. Vyawahare (1991) listed 245 bird species in Dhule district of Maharashtra. Prashant *et al.* (1994) in their study of coastal area of Nellore district recorded 78 species of birds. Terdalkar *et al.* (2005) listed 45 species of birds belonging to 18 families around Bhatye estuary, Ratnagiri. Watt *et al.* (2005) since habitat loss is one of the greatest threats to biodiversity in the world, neighborhood habitats such as dumpsites are crucial pieces holding together an increasingly fragmented landscape. Variety of vegetation types influence land snail and bird species richness and distribution (Nation 2007; Oka 2014) in terrestrial ecosystem.

The dumping ground all over the world in general and highly populated country like India in particular are sources of different types of poisonous gases, toxicants, diseases carrying organisms and spreading diseases in the workers and in the inhabitant of the vicinity, pollutants which are polluting land and water including the ground water. Due to the destruction and degradation of habitat of birds all over, birds are under stress, and adopting themselves in different ecological conditions. In such types of prevailing situations this dumping ground is providing a safe haven to these birds. It provides easy availability of food in a small area to a number of avifauna in terms of quality and quantity.

From the present study of one year on this dumping ground of Palghar it could be made out that the availability of food from different sources like household, vegetable market, hotels waste and in turn breeding of insects and other organisms on the garbage are attracting variety of birds to this area. Safe habitat, food sources and pits of water in the surrounding for both common and migratory birds around the dumping sites are important for the occurrence and abundance of avian population. Due to the bad smell/rotten smell there is no disturbance by the public, except rig pickers, which in turn providing the safe abode to the birds. But the impact of garbage, having pathogenic microbes, toxicants and other metabolites warrants further investigation.

Conclusion

During our study period between August 2015 to August 2016 around 33 species of birds belonging to 9 orders and 21 families were recorded in the study area which has its own importance. According to our observation following species were found in abundance, Paddy field Pipit, Common myna, Purple Sun bird, Redrumped swallows, House crow, Jungle crow, Little Egret, Cattle Egret, Palm swift and Blue rock pigeon.

In our observations we found that local people along with their families collect the metals and plastic from that dumping ground. We also observed that teenagers are hunting the birds with their locally made slingshot which the cause of great concern to the richness of avifauna of this ecosystem. There is a growing need to evaluate the impact of city dump-

sites management on biodiversity in order to maintain and enhance wildlife value. In the present scenario we see a hope from all the odds of dumping sites from avifauna abundance point of view provided the waste is segregated and there is scientific treatment of waste.

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