



Status and Distribution of Indian Peafowl (*Pavo cristatus*) in the South Coimbatore, Tamilnadu, India

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The Indian Peafowls (*Pavo cristatus*) is Least Concern (LC) category on Red list and Schedule I species as per Wildlife Protection Act (1972) in India. Indian Peafowl (*Pavo cristatus*) population status and distribution was studied in South Coimbatore district especially in Pollachi area from August 2017 to January 2018. The study carried out in 13 villages in South Coimbatore including Nchavelampalayam, Chandrapuram, Kollupalayam, Chellampalayam, Marampudungigoundanur, Athanaripalayam, Kotturmalayandipattinam, Vallakundapuram, Vedasanthur, Kanchampalayam, Sangampalayam, Angalankuruchi, Paramadaiyur Village etc. From the present study, 405 direct sighting consists of 1283 Peafowls in 13 villages were recorded. Based on the Group wise of Peafowls showed that Mixed group(MIG) contain 50.37% followed by Male female group(MFG) stand for 40.74%, Female chick group(FCG) contains 4.19%, Female group(FG) with the percentage of 3.95%, and Male group(MG) which constitute of 0.74% were recorded. Based on Peafowls classification, Females Peafowls consist of 59.85% followed by 17.77% of Peacock, 13.09% Peafowls chicks, 9.27% sub adults Peafowls were observed. According to the Peafowls habitat, the study area categorized into mixed forest (MFL) habitat, Agricultural Land (AL) and Coconut farmland (CFL). Maximum of Peafowls observed in Coconut farmland (CFL) comprised of 44.33% followed by the mixed forest land (MFL) habitat consists of 36.20% and very low in

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Agricultural Land (AL) 19.45% of Peafowls were occupied. As a result of habitat thrashing, absence of predation and easy accessibility of food, climate change influence of Peafowls interested in countryside villages.

Keywords: Indian Peafowl; density; distribution; Pollachi; Coimbatore; TamilNadu.

1. INTRODUCTION

The Indian Peafowl *Pavo cristatus* (Galliformes: Phasianidae) is the national bird of India, and is widespread and broadly scattered in the Indian Subcontinent [1]. However, its distribution is irregular and ranges from the Himalayas in the north to peninsular India in the south. Currently three species of peafowl are found in the world, i.e., Burmese peafowl from eastwards to Sumatra, African peafowl in Belgian Congo and Indian peafowl or blue peafowl in Indian subcontinent. The Indian peafowl is the biggest among all the pheasants and known as the national bird of India [2]. This bird is listed as of (LC) by the International Union for Conservation of Nature [3]. The Indian Peafowl is omnivorous and eats seeds, insects, fruits, small mammals, and reptiles [4]. In Tamil Nadu, peafowl population is plentiful in Pudukottai, Madurai, Ramanathapuram, Nilgiri, and Coimbatore districts [5,6]. Despite its wide distribution, there have been very few ecological studies on peafowl populations [7,8,9,10,11,12]. The population of the Indian peafowl is on the decline and the bird has become locally extinct in some areas of its past distribution range [13,14]. Miller [15] highlighted the importance of distribution and abundance of species in assessing the status. There are various threats to its existing populations including habitat loss and degradation, human population pressure, illegal poaching, intensive agricultural practice and use of pesticides, retaliatory killing, the collection of eggs for consumption and killing for medicinal purposes [16]. Today, its population is facing a severe threat due to habitat destruction, poaching, and contamination of its food source. Our study explored the status and distribution of Indian Peafowls in South Coimbatore district mainly in Pollachi area due to lack of recent research work on Indian Peafowl.

2. MATERIALS AND METHODS

2.1 Study Area

The map in Fig. 1 shows the study area of south Coimbatore district, TamilNadu, India.

Coimbatore lies at 11°16'N 76°58'21"E 11.01833°N 76.97250°E in south India at 411 meters (1349 ft) above sea level on the banks of the Noyyal River, in southwestern Tamil Nadu. It covers an area of 642.12 km² (247.92 sq mi). It is one of the fastest growing tier-II cities in India and a major industrial hub in South India. It is often referred to as the "Manchester of South India". It is surrounded by the Western Ghats mountain range to the West and the North, with reserve forests of the Nilgiri Biosphere Reserve on the northern side. The city is divided into two distinct geographic regions: the dry eastern side which includes majority of the urban area of the city and the western region which borders the Nilgiris, Anaimalai and Munnar ranges. Coimbatore has a pleasant climate due to the presence of forests to the north and the cool winds blowing through the Palghat gap in the Western Ghats. Under the Koppen climate classification, the city has a tropical wet and dry climate, with the wet season lasting from October to December due to the northeast monsoon. The mean maximum temperature ranges from 35.9°C to 29.2°C and the mean minimum temperature ranges from 24.5°C to 19.8°C. Due to the southwest monsoon winds passing through the Palghat gap, elevated regions of the city receive rainfall in the months from June to August. After a warm and humid September, the north-east monsoon starts from October lasting until early November. The average annual rainfall is around 700 mm (27.6 in) with the northeast and the southwest monsoons contributing to 47% and 28% respectively to the total rainfall.

2.2 Methodology

2.2.1 Survey method

Survey based on line transects were laid in different villages, habitat types and using a motor vehicle was used in the early morning (6 am to 9 am) and late evening (3 pm to 6 pm) to study the abundance and distribution of the Peafowl in the study area. A total of 78 km of transects were laid in thirteen villages. The transect was covered ten times in every month for all 13 Villages. We followed the classification by (Johnsgard, 1986), but combined the first and second year males as

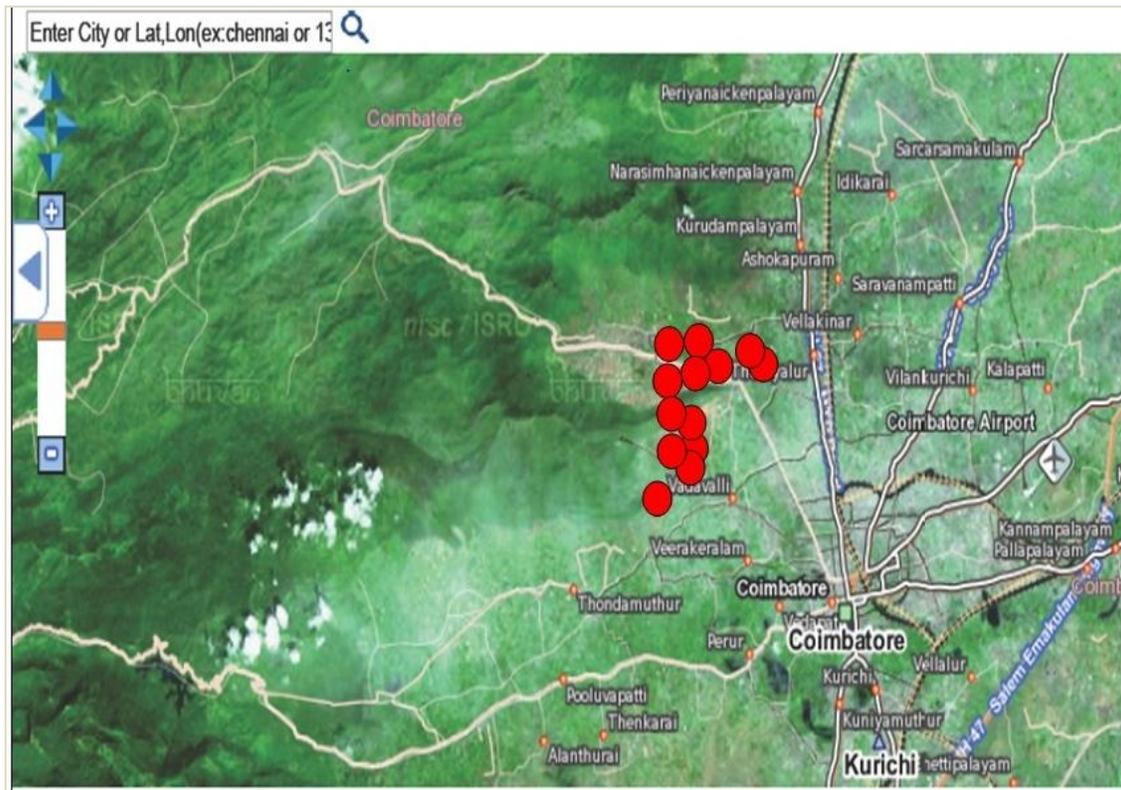


Fig. 1.

sub-adults because of possible errors in assigning individuals to these two categories. The habitat used by Indian peafowl was categorized as follows: (i) Agrifield which has barren land along with agricultural area. (ii) Coconut farms surrounded by agricultural land; (iii) 'Mixed forest' surrounded by shrubs and trees. On each sighting of the Peafowl variables such as Adult Male (Peacock), Adult Female (Pea hens), Sub Adult Male (SAM), Sub Adult Female (SAF) and Chicks were recorded along with the group size, vegetation and terrain type was recorded. For each peafowl species, detection time, group size, sex, sighting angle and the sighting distance from the transect line were recorded. Sighting angles were recorded using a handheld compass. Sighting distances were measured accurately using a laser rangefinder.

3. RESULTS

From the present study, out of four hundred and five direct sighting of Peafowls consists of 1283 Peafowls in thirteen different villages were recorded. The grouping structure for male Peacock contain one to four where as female

Peafowls were one to seven. According to the Group wise of Peafowls status showed that, Mixed group (MIG) ($n=204$; 34.00 ± 13.21), $ER=5.391$) which includes 50.37% were maximum observed in the Nchavelampalayam and Chandrapuram village followed by Male female group (MFG) ($n=165$; 27.50 ± 12.82), $ER=5.233$) stand for 40.74% in the Chellampalayam village, Vallakundapuram, Vedasanthur, Kanchampalayam, Sangampalayam, Angalankuruchi and Paramadaiyur, Female chick group (FCG) ($n=17$; 4.25 ± 3.20 , $ER=1.601$) contains 4.19% which was observed in Kotturmalayandipattinam villages, Female group (FG) ($n=16$; 4.00 ± 4.2 , $ER=2.121$) with the percentage of 3.95%, and minimum in Male group (MG) ($n=3$; $1.50 \pm .71$, $ER=0.50$) which constitute of 0.74% in the villages of Marampudungigoundanur and Athanaripalayam Villages recorded during the present study.

Based on Peafowls classification, Female Peafowls ($n=768$; 128.00 ± 33.21 , $ER=13.557$) consist of 59.85% followed by 17.77% Males Peacock ($n=228$; 38.00 ± 14.48 , $ER= 5.910$), ($n=168$; 28.00 ± 19.05 , $ER=7.776$) which contain of 13.09% of Peafowls chicks, ($n=119$;

19.83±8.75, ER= 3.572) Which contain 9.27% sub adults Peafowls recorded during the study period. Male - female sex ratio of adult Peafowls consists of 1:6.

Our study also recorded the sighting distance for observing Based on Peafowls animal classification, Female Peafowls (n=768) consist of 59.85% followed by 17.77% Males Peacock (n=228), 13.09% of Peafowls chicks, 9.27% sub adults Peafowls recorded during the study period. Male - female sex ratio of adult Peafowls consists of 1:6. The sighting distance based on Peafowls classified into three less than 10 meters and 10-20 meters and above 20 meters. Females normally observed 10 to 20 meters distance where as Male Peacock observed less than 10 meters distance, Peafowls chicks and sub adults were observed at the distance of minimum of 25 meters distance were observed during the study period.

The habitat wise of Peafowls in coconut farm land (n=524) with the percentage of 44.33%, followed by forest (n=428) contains 36.20%, agricultural land (n=230) stand for 19.45% were recorded. The Shannon Weiner index (2.0397) and dominance index (2.1253) were minimum in forest habitat where as in H (2.5410), D (2.767) maximum in the Coconut farm land were recorded.

4. DISCUSSION

Group wise of Peafowls status, Mixed group includes 50.37% followed by Male female group stand for 40.74%, Female chick group contains 4.19%, Female group with the percentage of 3.95%, and minimum in Male group which constitute of 0.74% in were recorded during the present study. The present study revealed that adult females were higher when comparing with sub adult. According to [17] population with more

females than males usually have higher reproductive prospective. Our study also revealed that population of female is almost double of male Peafowls, indicates that population of at South Coimbatore have a higher reproductive potential.

Peafowls live in little groups with others of their own sex or small family unit groups with one or more adult males accounted by several authors [18,19]. Our results also supported that grouping structure based on seasonal and food availability. The present study showed those female mixed groups were common. According to [20] Group shaping and sizes can be influenced by foraging activities [21] and predation [22], so breaking up into minor groups during foraging would be a fine policy to stay away from competition, when food resources are highly inconsistent.

Green peafowl distribution is not very large, and they live in groups. The average number of birds in a group from other locations (nine – eleven birds) observed. But other researchers noted that Konglonghe Nature Reserve we therefore estimate a total population of around 53 - 61 green peafowl, in eight groups [23]. Based on animal Classification of Peafowls in and around South Coimbatore District Showed that Females consist of 59.85% followed by 17.77% Male peafowl, 13.09% peafowl chicks, 9.27% sub adults Peafowls were recorded along with the Male female sex ratio of adult Peafowls consists of 1:6 peafowls per peacock. The habitat wise of Peafowls in coconut farm land with the percentage of 44.33%, followed by mixed forest contains 36.20%, agricultural land stand for 19.45% were recorded. The Shannon Weiner index (2.0397) and dominance index (2.1253) were minimum in forest habitat whereas in H (2.5410), D (2.767) maximum in the Coconut farm land were recorded.

Table 1. Showing animal GroupWise pattern of Peafowls (*Pavo cristatus*) in the South Coimbatore, TamilNadu

	Male Group (MG)	Male Female Group (MFG)	Mixed Group (MIG)	Female Chick Group (FCG)	Female Group (FG)
Mean	1.50±.71	27.50±12.82	34.00±13.21	4.25±3.20	4.00±4.2
SE	.500	5.233	5.391	1.601	2.121
Median	1.50	23.50	32.00	4.50	2.50
SD	.707	12.818	13.206	3.202	4.243
No of groups	3	165	204	17	16

Table 2. Showing classification of Peafowls (*Pavo cristatus*) in the South Coimbatore, TamilNadu

Month	Males	Females	Sub Adult	Chicks
August	65	140	37	64
September	29	105	18	35
October	25	111	13	18
November	36	86	20	18
December	42	150	15	15
January	31	176	16	18
Total No of individuals	228	768	119	168
Mean	38.00±14.48	128.00±33.21	19.83±8.75	28.00±19.05
SE	5.910	13.557	3.572	7.776

Habitat preference reported by several studies like [24] stated that the peafowl is a bird of scrub jungles, and [25] noted that it shows similarity to deciduous forests and semiarid biomes; it could also be found in agricultural fields. It prefers open areas as sites for lekking and dust bathing [10]. Our study also reported that the maximum numbers of Peafowls have been found in the Coconut farms land habitat [9] Reported that the scrub jungle habitat had thickets with climbers in the canopy, possessed thorny undergrowth and steep river banks with tall trees provided the Peafowls to escape from the predators. [13] also reported that Indian peafowl prefers habitats with mixed patches of forest and open lands and roost at tall trees. Some earlier studies conducted in Pakistan also recommended that peafowl prefers cultivated areas [26,27]. In our study the maximum of habitat utilized by peafowl was coconut farm land and minimum of Agricultural land. Locals told that peafowl gather near the edges of agricultural fields when the crop is at seedling period and they nibble the juicy seedling. Peafowl can be seen either singly or in groups feeding in open areas. The food eaten is varied and consists of a mixture of plant and animal matter that includes grain, grass-blades, leaves of certain plants, termites, grasshoppers, small reptiles etc. [28].

The Peafowls were most active between 09:00 and 11:00 a.m. and 5:00 and 6:00 p.m. Johnsgard [29] Also observed that the Peafowls were most active in the early morning and afternoon. Rathinasabapathi [30] Reported that the Peafowls are most active between 06:00 and 11:00 a.m. and 4:00 and 6:00 p.m. hours and they took a rest between 11:00 a.m. and 15:00 p.m. From our study also documented that Peafowls were active during early morning and evening hours. Our study also revealed the

abundance of peafowl nearby human settlement was highest recorded. Water sources have been reported as important for green peafowl [25,31,32], even though the open habitat adjacent water supply might also be a cause for their habitat choice.

5. CONCLUSION

Peafowls prefer the human habitat rather than the wild due to several factors which influence the survival rate of the birds. For long time conservation of Peafowls, strict laws against hunting, snaring and trapping of the species along with specific population monitoring needed every year due to high farming practices leads less foraging habitat of peafowl and that would automatically conflict with farmers. We need more detailed study on Peafowls due our study area were limited villages and cannot conclude the status of Peafowls. Conservation awareness programme should be carried out to alert local people involvement for minimize the Peafowls conflict with farmers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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