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SHORT COMMUNICATION

The Indian Peafowl (*Pavo cristatus*) in the Vicinity of the Giant's Tank in Mannar District, Sri Lanka

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ABSTRACT

The Indian peafowl, *Pavo cristatus* is distributed widely across the low country dry zone of Sri Lanka. Observations of the peafowl were carried out in the vicinity of the Giant's Tank in Mannar District for 46 days from July 2003 to October 2005 to understand their distribution and abundance in Mannar area. A total of 624 birds were encountered, of which 342 were males, 270 females and 12 chicks. Of the 342 adult males recorded, 169 (49.4%) were solitary, while 35 (10.2%) were found in male-only groups. Of the 270 adult females observed, only 31 (or 11.5%) were solitary, while 33 (12.2%) were found in female-only groups. Of the 624 peafowl observed in the study, only 49 (7.9%) were present in mixed groups. In these mixed groups, the average adult male:female ratio was 1:0.79. The birds were most active during the period of 1600 to 1900 hrs with a peak between 1700-1800 hrs. Breeding season commenced in December with the onset of the north-east monsoon and reached its peak in May with the start of the dry season. Chicks were observed with peahens in February 2004. The approximate density of peafowl in the area was 13.8 km^{-2}. Lack of conflicts with local agricultural communities and the presence of large tracts of scrub forest and associated grasslands with access to water are among the key factors for their long-term survival in the area.

Keywords: active period; breeding season; density; mixed groups; solitary

INTRODUCTION

The Indian Peafowl *Pavo cristatus* (Fig. 1) is one of the eight species of game birds (Order: Galliformes) belonging to the family Phasianidae found in Sri Lanka. It is also one of the most brightly colored and easily recognizable birds in the island. Both sexes have a distinctive fan-shaped crest (hence the specific name, *cristatus*) but only the male has the unmistakable ornamental train (Harrison and Worfolk, 1999). The train is very light when fully developed, and makes up almost 60% of the total body length which makes the peacock one of the largest bird with the ability of flying. These long tail feathers are shed once the breeding season is over. The peacock has a metallic blue head and a bright blue neck and upper body, while the peahen has a chestnut brown crest and neck with feathers bordered in bronze and green (Fig. 1). Females are smaller than males.

It appears that peafowl occurs in high densities in the Mannar District, increasingly recognized as a pest. Therefore, the present study was conducted over a period of 2 years to examine peafowls in the vicinity of Giant's Tank in the Mannar District, Sri Lanka.

Distribution and Habitat

The range of the peafowls extends from eastern Pakistan through Nepal and India south of the Himalayas down to Sri Lanka. It is rare in Bhutan and probably extinct in Bangladesh (Ramesh and McGowan, 2009). It has been introduced to Andaman Islands (Ali and Ripley, 1980). Captive populations are found in many other parts of the world. In Sri Lanka, it is essentially a bird of the low country dry zone, being especially common in the wild encompassing, coastal districts of the north-west, east, and south-east; but it is also found in scattered colonies in the vicinity of the island's numerous man-made irrigation reservoirs or tanks (Henry, 1971). It is a creature of the open country, scrub-land and chena with adequate sites for 'dust-bathing' and 'lekking', but avoids dense forest. As Ramesh and McGowan (2009) point out, 'dust-bathing' is important to get rid of the feather-degrading bacteria and other external parasites. This is probably a reason why the species is associated with extremely dry areas. It is also found in agricultural fields and close to human settlements in a semi-feral condition (Johnsgard, 1986) and in home gardens where it can be a serious pest.

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Figure 1. Male and female Indian peafowls, Mannar, Sri Lanka.

MATERIALS AND METHODS

Observations on the Indian peafowl were carried out in the vicinity of the Giant's Tank in the Mannar district, Sri Lanka from July, 2003 to October, 2005, during the ceasefire period, which enabled us to carry out field work hitherto inaccessible area. Mannar district lies in the low country dry zone which receives less than 100 mm of rainfall annually, much of it falling between November and December. During the period of 46 days, the peafowls were observed with naked eye as the use of binoculars was forbidden by the armed forces of Sri Lanka, from 0600 to 1900 hrs on either side (up to 50 m) along a 50 km stretch of the A14 highway, from Parayanalankulam in the east to Mantota in the west. At every sighting of the peafowl, its number, sex, location, time, activity and habitat were recorded.

RESULTS AND DISCUSSION

There were 624 encounters of peafowls during the study period, of which 342 were males, 270 females and 12 chicks (Table 1). In study locations, peafowls live in small groups with others of their own sex or small family groups with one or more adult males. Of the 342 adult males encountered during the study, 169 (49.4%) were solitary, while 35 (10.2%) were found in male-only groups. Of the 270 adult females recorded, only 31 (11.5%) were solitary while 33 (12.2%) were found in female-only groups. Further, 49 of the 624 peafowls observed in the study (7.9%) were present in mixed groups, which include both male and female birds. The most frequently observed category is the solitary individuals, followed by pairs and groups of 3 to 4 individuals. The largest group size encountered was 20; which comprised 3 adult males with long trains, 6 adult males with short trains and 11 adult females.

During the breeding season, males become solitary and establish territories called 'leks'. As Southwell (1984) argues, variation in group size is a reflection of a species' ability to adapt to its environment. Various factors such as changes in habitat structure, spatio-temporal distribution of food and predation pressure could have an impact on group size in mammals (Barrette, 1991) and these factors may also affect peafowls as well. As far as the peafowl is concerned, according to Tivedi (1993), group size appears to vary due to habitat structure and spatial variation of food. It can also vary due to the behavior of individuals during the breeding season. As Yasmin (1997) argues, resource abundance may change with changing seasons and variation in group size is therefore expected between the seasons as well. The adult male:female sex ratio too varies with changing seasons (Table 1) but on average it is 1: 0.79 which is quite similar to those obtained in India. Sundaramurthy *et al.* (2002) reported the sex ratio of adult male and female to be 1:0.72 in South India, while Solaiappan *et al.* (2002) have reported the sex ratio of adult male to female as 1:0.76.

Table 1. Changes in the structure, composition and sex ratio of peafowl population in Mannar, Sri Lanka.

Period	Number of individuals						
	Total	**Males (M)**	**Long-train (as a %)**	**Short-train (as a %)**	**Females (Fm)**	**Fm:M ratio**	**Chicks**
July - Sep, 2003	50	35	10 (29)	25 (71)	13	0.37	2
Oct - Dec, 2003	36	14	5 (36)	9 (24)	22	1.57	0
Jan - Mar, 2004	65	32	22 (69)	10 (31)	23	0.72	10
Apr - Jun. 2004	157	92	28 (31)	63 (69)	65	0.7	0
July - Sep, 2004	117	54	40 (74)	14 (26)	63	1.17	0
Oct - Dec, 2004	144	82	58 (70)	25 (30)	62	0.76	0
Jan - Mar, 2005	6	5	3 (60)	2 (40)	1	0.2	0
Apr - Jun, 2005	28	22	4 (18)	18 (82)	6	0.27	0
Oct - Dec, 2005	21	6	5 (83)	1 (17)	15	2.5	0
Total	**624**	**342**	**175**	**167**	**270**	**0.79**	**12**

% values are given within brackets.

There is a slight peak in activity around 0700 hrs but the main period when the most birds are actively feeding is between 1600-1900 hrs.

Peafowl can be encountered at any time during the day but their abundance varies. It forages and nests on the ground but roosts on tree tops. Although there is a slight increase in the activity of peafowls early in the morning, the birds were most active from 1600 to 1900 hrs with a peak between 1700-1800 hrs (Fig. 2). This is the time the birds can be seen in open areas foraging. In the hottest part of the day, they find shelter in shady forests. The peacock's large body and brilliant plumage would make it extremely vulnerable for predation (Ramesh and McGowan, 2009). Nevertheless, peafowl can be seen either singly or in groups feeding in open areas. The food eaten is diverse and consists of a mixture of plant and animal matter that includes grain, grass-blades, leaves of certain plants, termites, grasshoppers, small reptiles etc. (Henry, 1971). However, observations suggest that the bulk diet of the Peafowl constitutes of plant material while animals make up only a small proportion. After feeding, the birds frequent water holes or streams to drink during the day and also visit sandy areas to dust-bathe. After the evening peak of activity, the birds would fly into some tall trees that provide an uninterrupted view of the terrain, to roost. Peacock calls are spread throughout the day. The usual call note is a very loud, penetrating nasal series of wails, starting with *peahawn, peahawn* uttered by both sexes that can be heard miles away. On taking off, the bird would utter a loud *kokkokkok* (Henry, 1971). According to Takahashi and Hasegawa (2008), a variety of calls are given by peafowl of which seven are made only by males, out of which three call types are important for breeding; six alarm calls are uttered by both sexes. Being an extremely weary bird endowed with a good sense of sight and hearing, it gets alarmed at the slightest hint of danger. Nevertheless, it is unafraid to enter home gardens and agricultural fields where it can be a serious pest.

Breeding

Figure 4 depicts the changes in the frequency of occurrence of the long-train and short-train among male *Pavo cristatus*. Note that the males with short-train reached a maximum during the hottest time of the year, while those with long train reached their peak that coincides with the rainy season in the Mannar District.

The Indian peafowl is a lek-breeding, dimorphic species with males developing an elaborate tail (known as the train) as the breeding season progresses (Yasmin and Yahya, 1996). According to Henry (1971), peafowls start breeding once the cocks have grown their train after the autumn moult. Tail feathers are shed in August and fully developed new feathers appear in February (Sharma, 1974). Although peacocks are capable of mating at the age of two, they reach sexual maturity a year later. Peacocks acquire their full trains when they are about 3 years old. Being polygamous, a peacock can mate with 4-5 peahens during a breeding season, which commences in December with the onset of the north-east monsoon and reaches a peak in May (Fig. 3) with the start of the dry season, very much similar to the pattern reported from India. This is when largest number of peacocks with long trains was observed.

Peacocks with long trains establish display territories which are maintained until the end of the breeding season followed by the moulting of the train feathers. Not all the males are successful in breeding thereby resulting in a skewed distribution of mating towards a few males, as has been reported by Rands *et al*., (1984) and Petrie *et al*., (1991) in peafowls in India. Many peacocks seem to display just after a rain. They do so by erecting their long tail feathers vertically, spreading them into a great semicircular fan (Fig. 1), as observed by Henry (1971). During the display, the tail quills are rattled to make a loud shrill rustling (Rasmussen and Anderton (2005).

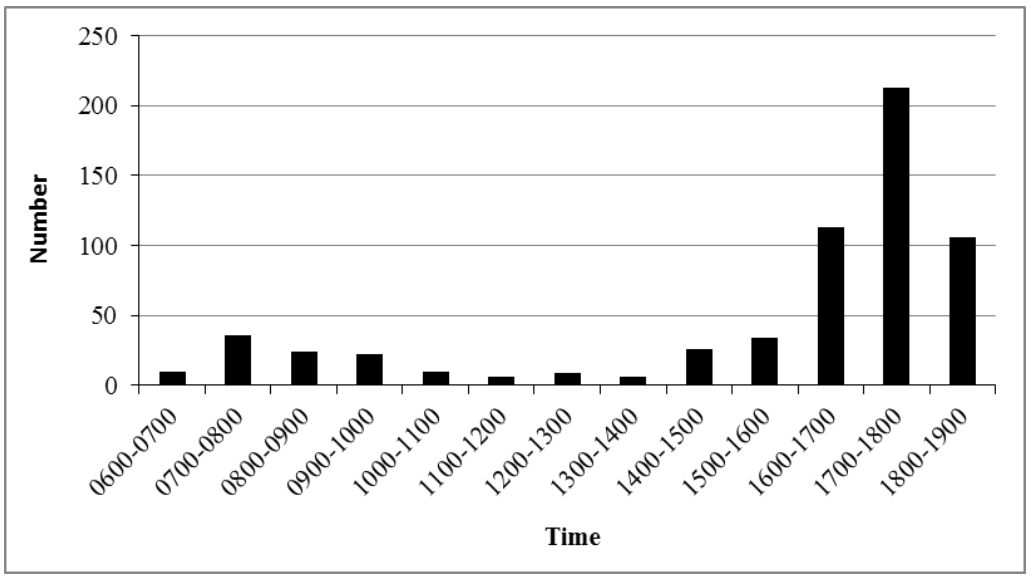

Figure 2. Activity pattern of *Pavo cristatus* throughout the day

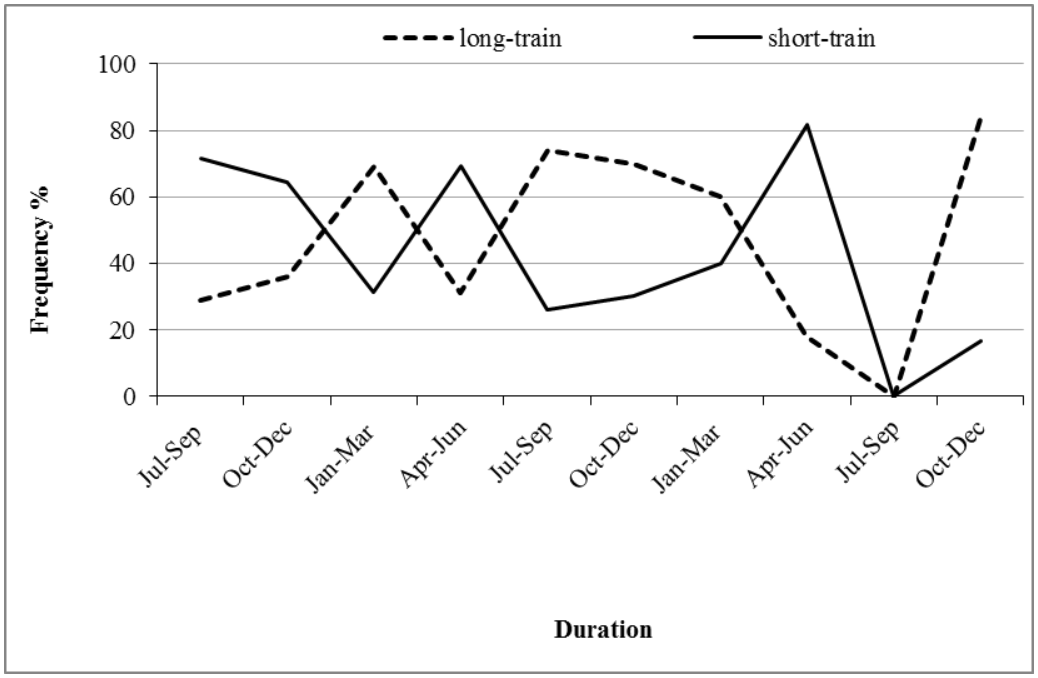

Figure 3. Changes in the frequency of occurrence of the long-train and short-train among male *Pavo cristatus*. Note that the males with short-train reach a maximum during the hottest time of the year, while those with long train reach their peak that coincides with the rainy season in the Mannar District.

Given that peafowls were monitored along a distance of 50 km up to 50 m on either side of the main road, the total area surveyed was 5 km^2. The average number of individuals encountered during the survey was 69. This provides an approximate density of 13.8/km^2, which is much higher than the value of 1.14/km^2 obtained in the Ruhuna National Park (Santiapillai and Dissanayake, 1992). In a study carried out in the Gir National Park in India, Maheshwari (2006) estimated a density of peafowl to be 12.43/km^2. The fact that the peafowl occurs in such high density in the Mannar District is due to the fact that forest along the main highway were cleared up to 50 m on either side as a security measure during the civil war. This created grasslands and scrub ideal for the peafowl whose numbers then started to increase. Peafowl is one of the species that benefited from the war as a result of habitat changes and the relocation of human settlements from conflict areas.

Conservation

The peafowl has been associated with man for thousands of years. It is well adapted to living in man-dominated and human-altered landscapes. It is reasonably abundant and widespread in Sri Lanka. One of the species that have benefited from the decades long civil conflict in the Mannar district has been the Indian peafowl, which enjoys good distribution and number. The increase in the range and number of the peafowl is largely attributed to the creation of substantial areas of grassland and scrub through the removal of tree cover along the main highways as a security measure. The observed crude density of 13.8 birds per km^2 represents one of the healthiest densities ever recorded in the wild. Nevertheless, now that the civil conflict is over, the return of the refugees and the resumption of agriculture would pose some threats to the peafowl.

Peafowl is regarded as one of the serious pests of agriculture. The use of pesticides in agriculture also poses a threat especially to the chicks (McGowan and Garson, 1995). Peacocks are also caught for their magnificent tail feathers, and also for making 'peacock oil'. In agricultural areas and in home gardens, peafowl are also attacked by dogs. Mannar is an area of high potential for agriculture, and as a result there would be increased pressure on fallow lands to be brought under the plough. Such conversions of land for agriculture would greatly reduce the habitat for peafowl and will bring the species into conflict with farmers. The key to long-term survival of the peafowl is the reduction of such conflicts and the maintenance of large tracts of scrub forest and associated grassland with an undisturbed access to water.

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