

## Parental Care in Little Brown Dove, *Streptopelia senegalensis*: A Case Study

<sup>1</sup>Patil Kishor Gopal and <sup>2</sup>Shende Virendra Abaji

<sup>1</sup>Department of Zoology, Institute of Science, R.T. Road, Nagpur (M.S.) India PIN-440 001

<sup>2</sup>Kanhobaji Zolbaji Shrikhande Science College, Bramhani-Kalmeshwar,  
Dist. Nagpur (M.S.) India. PIN-441 501

**Abstract:** A case study of parental behavior in little brown Dove, *Streptopelia senegalensis* (Order-Columbiformes, Family-Columbidae) is discussed. The study is carried out during the month of February and March 2013. The courtship, reproductive, oviparous as well as social behavior in *Streptopelia senegalensis* (*S. senegalensis*) is examined. During courtship, male groom the female and fed with some insects and caterpillars. Female washes the vent in clean water after mating. Female built the nest using grass sticks, stiff wood sticks and few plastic wires; no soft materials are used. The two bright white eggs are measured about 3cm in length and 2cm in breadth. After nine days of incubation the eggs are hatched. The nestlings are altricial type, measuring 4.5cm length; bear dark gray skin and blunt gray beak. On 2<sup>nd</sup> day, growing nestlings measure 5.5cm in length, indicating fast growth rate. The chicks are inserting their blunt beak in the mouth of mother for pigeon milk.

**Key words:** Altricial • Courtship • Little Brown Dove • Ovipary • Parental Care • *Streptopelia senegalensis*

### INTRODUCTION

The seasonal weather patterns of tropical environment in central India favors the resident of diverse avian species in this region [1, 2]. Along with many birds, the little brown doves, *Streptopelia senegalensis* are adapted to habitat near human population. The *S. senegalensis* is very common avian species found in and around Nagpur city of Central India [3, 4]. Nesting behavior of New Zealand pigeon was observed, including the location and dates of nesting, incubation, brooding and feeding of nestlings, nestling development and fledging and nesting success and clutch overlap [5-9].

Laughing Doves laid eggs throughout the year, but main breeding season was from September to November and from March to April. Immediately following copulation the male stands with its head up and neck feathers puffed out, while the female parades around with its rump and neck feathers erected. The nest was made of small twigs and can be found on rafters or thatch of a hut, on shelves, windowsills, balconies, or in flower pots and in low trees or bushes. Two white eggs were constituted a normal clutch with an incubation period lasting from 12 to 14 days. Both the male and the female share the

incubation and both feed the young. The young were fed food by "pigeon's milk". The present report is a case study of *S. senegalensis*, explains the courtship, reproductive, parental care and also social behavior in this species.

### MATERIALS AND METHODS

The report is a case study, deals with the observations on parental behavior in little brown Dove, *S. senegalensis*; belongs to Order- Columbiformes of Family-Columbidae. The study of parental care of *S. senegalensis* in the nest on shrub *Ixora coccinea* is carried out daily from 2<sup>nd</sup> February 2013 to 4<sup>th</sup> March 2013 near the resident of author in the West Nagpur area. The investigations are made during the day hours where maximum temperature was approx. 28°C-32°C and minimum temperature was around 18°C-22°C. Author made available the variety of food grains, cooked food and water regularly nearby nesting area of bird. The parental behavior of *S. senegalensis* is examined, maintained a diary and videos and photographed by Sony Handycam HDR-XR150 camera. Precautions are taken not to disturb birds, eggs, chicks and nesting site.

**Observations:** Courtship of *Streptopelia senegalensis* is observed on 2<sup>nd</sup> Feb. 2013 and continued upto 7<sup>th</sup> Feb. 2013. During this period, male frequently groom and occasionally fed the female by insects and caterpillars. The mating is taken place repeatedly and each mating last for a few seconds only. Female washes her vent many times after each mating. During the daytime, from 8<sup>nd</sup> to 15<sup>th</sup> Feb. along with courtship, the female is sat for a longer duration on the warm, soft and moist soil filled in earthen pots for growing plants; probably warming its belly (Fig. 1). The shrub, *Ixora coccinea* (Family- Rubiaceae) is selected for nesting site. The nest is constructed within a day and half during day time from 22<sup>nd</sup>-23<sup>rd</sup> Feb. by female only. The chosen nesting site was covered with green leaves and also safe from terrestrial predators. Female collected soft, semidried, thin grass sticks; few wood sticks and plastic wires for building nest. Male was not noticed during the construction of nest. No soft materials like feathers, cotton etc. were used for the building of nest. Female laid one egg in the evening of 23<sup>rd</sup> Feb. and second egg in the afternoon of 24<sup>th</sup> Feb. Eggs were oval and bright white in color; measured about 3cm in length and 2cm in breadth. The female regularly changed her orientation after every 1-2 hours while incubating the eggs from 24<sup>th</sup> Feb. to 2<sup>nd</sup> March.

It was noticed that the position of the eggs was also changed during incubation. While incubating the eggs, female left the nest very rarely and for very few minutes (2 to 10) only in the morning and evening hours for foraging. One egg was found hatched at the night of 2<sup>nd</sup> March and other in the morning of 3<sup>rd</sup> March. The nestlings were naked, blind, helpless and wholly dependent on its parents i.e. altricial type. During this period, the female continuously brood the nestlings. The broken egg shells were very thin and bend without cracks or breaks; thrown by the female far away from the nesting site. The newborn nestlings measure 4.5cm in length with dark gray skin, closed eyes, gray color blunt beak and body covered with patches of creamy white down filaments. On the second day the nestlings were measured 5.5cm showing the fast growth rate. The chicks were inserting their blunt beak in the mouth of mother (Figure 7) and suck the fleshy food (Caterpillars and soft parts of insects) and pigeon milk. In the morning of 4<sup>th</sup> March to avoid the danger of Greater Coucal, *Centropus sinensis* (Carnivore); the surrounding doves alerts the nursing female and within few minutes female moved the nestlings to the safer place. The incident indicates the parental care and social behavior among the birds.

Table 1: Periodical observations on parental care in little brown Dove, *S. senegalensis*

S.N.	Dates	Observations
1	02. 02. 2013 to 07. 02. 2013	The female and male of Little brown dove, <i>Streptopelia senegalensis</i> observed in courtship; the male is involved in grooming the female. After the mating, female washed its vent.
2	08. 02. 2013 to 15. 02. 2013	The birds show the courtship behavior. The female is warming the belly in moist, sun warm soil for hours. (Figure 1)
3	22. 02. 2013 and 23. 02. 2013	Female continuously involved in constructing the nest, in the bushes of <i>Ixora coccinea</i> (Rubiaceae) using mostly grass sticks, some stiff wood sticks and few plastic wires but no soft material is used. The nest is constructed within the inverted tripod branching, covered by dense green leaves so that it is not easy to locate by the predators. The nest is approximately 11cm in diameter (Figures 2 and 3). The nest is completed within a day and half by the female but male is not noticed in nest building.
4	23. 02. 2013 (in the evening) 24. 02. 2013 (in the afternoon)	The first egg was laid The second egg was laid The eggs are typical oval in shape and measured about 3cm in length and 2cm in breadth (Figure 3).
5	24. 02. 2013 to 02. 03. 2013	Female incubating the eggs (Figure 4) and continuously change her orientation after every 1-2 hours. During incubation, position of eggs is also changed. Female left the nest very rarely and for a few minutes (2 to 10) in the morning and evening hours.
6	02. 03. 2013 (in the evening) 03. 03. 2013 (in the morning)	One egg hatched The second egg hatched The female continuously brood the nestlings. On day 1 the nestling measures about 4.5cm in length (Figure 5); bears dark gray skin, closed eyes, gray color blunt beak and body covered with patches of creamy white down filaments (Figures 5 and 6).
7	04. 03. 2013	On day 2 the growing nestling measures approximately 5.5cm in length (Figure 6). The female is observed feeding (chick inserts a blunt beak in the mouth of mother) the chicks with pigeon milk (Figure 7) and brooding (Figure 8).
8	04. 03. 2013	In the morning while feeding the chicks, the sound of Greater Coucal, <i>Centropus sinensis</i> is heard near the nesting area. Immediately the surrounding birds give alert calls and within a few minutes (4-5) female moved the chick to safer site. After about 10-15 minutes the Greater Coucal is noticed wondering near the nest. Later, dove is not visited or used the same nest



Fig. 1: Male *Streptopelia senegalensis* showing the courtship display while female was warming its belly in moist, sun warm soil for hours

Fig. 2: The nest of *S. senegalensis* built in *Ixora coccinea* (Rubiaceae) using grass sticks, some stiff wood sticks and few plastic wires. Notice that no soft materials are used in the nest.

Fig. 3: The typical oval and bright white eggs of *S. senegalensis* are in the nest with few plastic wires.

Fig. 4: Female of *S. senegalensis* incubating the eggs.

Figs. 5 and 6: The nestlings of *S. senegalensis* are on day one (Fig. 5) and on day two (Fig. 6). They bears dark gray skin covered with patches of creamy white down filaments, closed eyes and gray color blunt beak

Fig. 7: Chick is inserting the blunt beak in the mouth of mother for sucking the fleshy food

Fig. 8: Brooding of nestlings by female

## DISCUSSION

The Little brown dove, *Streptopelia senegalensis* is one of the most common avian species in the region of Nagpur city (Central India), where the study is carried out. During courtship, male frequently groom, feed the female by insects and caterpillars and repeatedly mate; each mating lasts for few seconds only. Pre-mating courtship seems common among species in Columbidae [10]. The

male in courtship display, follows the female with head bobbing displays while cooing. The male pecks its folded wings in "displacement-preening" to solicit copulation from the female. The female accepts by crouching and begging for food. The male may indulge in courtship feeding before mounting and copulating. Pairs may preen each other [11]. No solicitation or pre-copulatory behaviour was noted in New Zealand pigeon (*Hemiphysalis seelandiae*). The male approached the

female, mounted and copulated for approximately 3 seconds. Both birds then preened for approximately 2 minutes and then the female left and began feeding. The nestling was fed approximately once an hour, with no feeding occurring from around dusk to just past midnight [12].

The nest is constructed by semidried, thin grass sticks; few wood sticks and plastic wires within a day and half during day time on the shrub, *Ixora coccinea*. No soft materials like feathers, cotton are used for the building of nest. Female was laid one egg in the evening of 23<sup>rd</sup> Feb. and second egg was laid in the afternoon of 24<sup>th</sup> Feb. Female is observed incubating the eggs from 24<sup>th</sup> Feb. to 2<sup>nd</sup> March and regularly changing its orientation after every 1-2 hours. The eggs were incubated after the second egg was laid and the eggs hatched after about 13 to 15 days [13, 14].

The nest of *Streptopelia senegalensis* was a very flimsy platform of twigs built in a low bush and sometimes in crevices or under the eaves of houses. Both parents build the nest with males bringing the twigs which were then placed by the female. Two eggs were laid within an interval of a day between them and both parents take part in building the nest, incubating and feeding the young. Males spend more time incubating the nest during the day was reported [15]. In present observation, male is not noticed during the construction of nest, incubation of eggs and feeding of chicks. The chicks were inserting their blunt beak in the mouth of mother and sucking the fleshy food [16, 17] conformed in the present observation.

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