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BIRDS SOCIO BEHAVIOR STUDY IN SHEKHAWATI REGION (RAJ.)

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Abstract

Psittacula krameri, also known as the Rose-ringed Parakeet, is a member of the avifauna that may be found in the agroecosystem and urban area of the Shekhawati region in the state of Rajasthan in India. The research was conducted on two different study locations in the Shekhawati region between the months of January and July in the years 2017 and 2019. One of the study sites was a farmland area from the district of Jhunjhunu (Rajasthan), while the other was an urban area from the district of Sikar (Raj.). They are cavity nesters in the current research region, meaning that they lay their eggs in holes in trees and other cavities, such as those found in buildings. During the months of January and February, nesting behaviour and the selection of a nest location were monitored. Between the months of January and March, mating was observed. The laying of eggs occurred during the last week of February and continued through March. The average number of eggs found in a clutch was 3.86, with the typical range being anywhere from 2 to 6 eggs. The duration of the incubation phase ranges from 22 to 24 days on average. The young birds left the nest between the 21st of March and the 13th of April. In the area under consideration for this study, researchers calculated that the average number of fledged birds was 2.20, and the average fledging rate was 54.2%. Approximately five weeks after the eggs were laid, the only bird that fed the nestlings was the male. When they are eight weeks old, the young birds will leave the nest in search of food. Around the 12th week after hatching, the young ones were able to fend for themselves and joined the flocks as they flew to their last roosting location.

Keywords: *Birds , shekhawati region*

Introduction

Psittacula krameri, often known as the Rose-ringed Parakeet, is the species of parrot that has the widest distribution in the Psittaciformes order (Forshaw et. al 1981). The rose-ringed parakeet may be found in its native habitat in southern Asia in places that are sparsely wooded, as well as in cultivated farmlands, urban gardens, and parks (Paton et. al, 1982). In India and Pakistan, the parakeet often nests in the cavities of trees; but, in certain instances, appropriate recesses and cracks in buildings as well as telegraph poles may also be utilised for nesting (Ali & Ripley, 1969; Sarwar M. 1987, Sarwar et. al 1989 Roberts, 1991). During the months of January and February, small groups of two to five birds comprise the parakeet's active quest for suitable nesting sites (Sarwar et al 1989). The little information about the rose-ringed parakeet's breeding behaviour in Rajasthan that is known comes from generic sources. Other than that, there is very little information available. Because of this, an investigation on the reproductive ethology of this bird was carried out.

Aim of the Study

his Research This magnificent bird was seen in the Shekhawati district of Rajasthan, and the primary objective of this research was to learn more about the reproductive behaviours and breeding success of the species.

Materials and Methods

The Shekhawati region of Rajasthan is found in the state's north-eastern corner (Fig. 1), and it is a semiarid zone. The average annual rainfall in this region is between 450 and 600 millimetres, and the temperature ranges from 0 degrees Celsius in the winter to more than 480 degrees Celsius in the summer. Study area I, which is a cropland and is located in the Jhunjhunu district (Fig:2), is home to a variety of tree species. Some of these include Azadirachta indica (Neem), Ailanthus excels (Aadu), Albizia lebbeck (Siris), Dalbergia sissoo (Shisham), Acacia arabica (Babul), and the dominant species Prosopis cineraria Study area II is an urban area that is located in the Sikar district (Fig:2) and is comprised of parks and roadside plantation. It also has many tree species, including Dalbergia sissoo, Azadirachta indica, Albizia lebbeck, Ailanthus excels, Eucalyptus spp., Ficus religiosa, and Ficus bangalensis, among others.

Fig 1.shekhawati region of Rajasthan

The study was conducted on study area I of the Jhunjhunu district and study area II of the Sikar district correspondingly in the years 2013 and 2014 between the months of January and July in each of those years. During the course of the academic year 2013, the Study Area I was visited at least three times each week, in the morning, in the evening, and once per week for the entire day. During the course of the whole research project carried out in 2014, the Other Study Area (II) was only visited once per week on average. The research locations were visited a total of 95 times, with 70 of those visits occurring in 2013 and 25 of those visits occurring in 2014. The length of these trips varied anywhere between six and ten hours. In total, there were 666 hours spent out in the field. During each of these visits, the reproductive ethological behaviours of rose-ringed parakeets in reference to breeding season, nesting and nest site selection courtship behaviour, clutch size, incubation period, and parental care of young ones were recorded with the assistance of a DSLR video camera and a telescope on the basis of the focal animal method and the continuous sampling method. This was done on the basis of the focal animal method and the continuous sampling method.

Fig 2 location of study areas

Results and Discussions

Breeding Season

In India, the breeding season for rose-ringed parakeets is quite lengthy. It begins in January, when prenesting and mating activities take place, and lasts until the end of July, when the fledglings leave the nests for the first time. In these studied regions, the mating season of this species extended from January to July, according to sporadic observations made over the course of the research project. Mating began in February, and by the middle of July, all of the young of the season had typically flown the nest. Every season brought out only a single offspring from the mating partners. During the course of this research, no evidence of a second clutch was discovered, despite the fact that Hossain et al. (1993) found that a second clutch had occurred in other populations.

Nesting Behaviour and Nest Site Selection

The cavities discovered in the rotten or hollow limbs and trunks of trees were the most common nesting spots for rose-ringed parakeets in the region where this study was conducted. (Plate:1) During the course of the research, a total of 15 nest cavities were discovered. These nest cavities were found in three different tree species: Prosopis cineraria (9), Ailanthus excels (2), and Albizia lebbeck (2). The majority of these nest cavities were natural and were created by woodpeckers. Only a tiny number of the nests were discovered (13.3%, or only 2 out of 15), and their locations were determined to be gaps in walls (1) and drain pipes (1). (Figure-3).

Plate no. 1 : a male and a female bird sitting on the nest.

In January and February, the parakeets started moving into the nest holes, and throughout the rest of the mating season, they fiercely guarded their territory against other members of their own species as well as other species of birds. Some sporadic observations suggested that the common myna is the primary adversary in the competition for nest site selection. Due to the fact that the mating seasons of the rose-ringed parakeet and the common myna overlapped, it is likely that the common myna fought off the rose-ringed parakeet for the right to occupy appropriate tree cavities as nesting places.

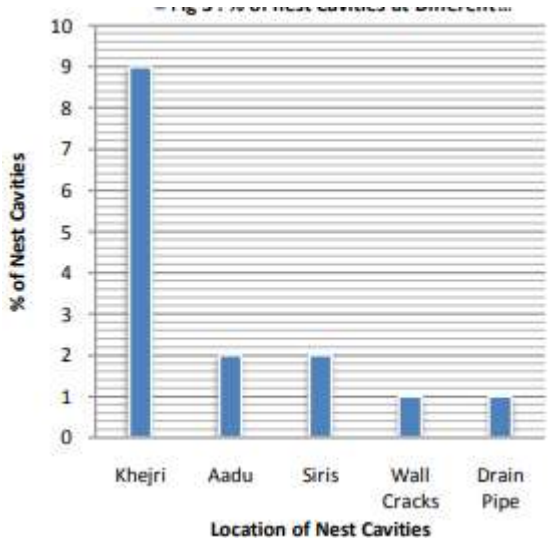

Fig 3 : % of nest Cavities at Different …

During the course of the research, it was also discovered that if the entrance to the tree hole is insufficiently large, the female will use both her beak and her feet to widen the opening and begin preparing the nest. She will frequently incorporate the discarded wood chips into the construction of the nest. Mated females devote a greater portion of their time to activities such as nest hole selection, inspection, and preparation. During the courting and mating phase, the male is responsible for gathering food and feeding the female. The female is responsible for preparing the nest. This kind of labour distribution will continue until the young birds may be seen emerging from the entrance of the nest.

Courtship and Mating Behaviour

Parakeets practise lifelong monogamy and mate for the rest of their lives. From January through March, with the majority of records coming from February, mating was seen. It occurred in the neighbourhood of the nest cavities as well as at other locations away from them. The male will serve food to the female by passing it from his beak to hers, and the two will also engage in mutual allopreening. Displays include stretching and bending of the legs and breast. The rose-ringed parakeet engages in a wide variety of courting behaviours, such as duelling with their bills, kissing, earessing, entwining their necks, nibbling at each other's, and side by side body contact, in order to increase the likelihood that they will successfully reproduce (Plate:2).

Plate 2: courtship activities

The whole mating act (copulation), which included posture of the female, puffing, bowing, and mounting by the male, as well as the cloacal kiss, was finished in one to four minutes (Figure-4), with both birds maintaining their silence throughout the process (A total 40 observation of copulation period were recorded by DSLR Camera).

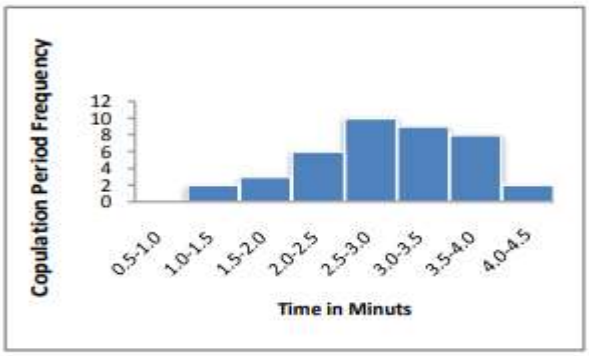

Fig.4 : Copulation Period Frequency of Rose Ringed Parakeet

Clutch Size and Incubation Period

The results were completely consistent with the observation table. The average number of eggs in a clutch is 3.86, with the usual range being anything from two to six eggs. The earliest instance of eggs being found was on March 2nd, however they might have been laid as early as February 27th (back calculated from hatching date). During the course of the research, a total of 15 nests were spotted; seven of these nests were found in study area 1 in the year 2013, and eight of these nests were found in study area 2 in the year 2014. As a consequence of this, the ensuing findings concerning incubation and brooding behaviour were mostly limited to 15 nests. Two of the fifteen clutches that were monitored did not produce any offspring at all. The duration of the incubation phase was between 22 and 24 days. Only the females were responsible for incubating the eggs, while the male continued to forage for food while calling to the female to come and eat. The female responds by leaving the nest and moving to a neighbouring limb, where she receives the food that is brought to her beak to beak by the male. The mean size of a clutch (3.86 grammes) obtained from this study was comparable to the mean size of a clutch obtained from other studies. The date of the first documented egg is significantly later than what was previously reported for southern India (Shivanarayan et al, 1981-21 December), but it is fairly close to what was previously reported for northern India (Simwat and Sidhu, 1973) and Bangladesh (Hossain et al, 1993).

Table : A Total Observations about Reproductive behavior of Rose-Ringed Parakeet

Study Area No.-I (Cropland Area of Jhunjhunu) Year-2013								**Study Area No.-II (Urban Area of Sikar) Year-2014**								**Total/ Mean**
No. of observed nests	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	15
Location of Nest	Khejri Tree	Khejri Tree	Khejri Tree	Khejri Tree	Khejri Tree	Khejri Tree	Khejri Tree	Aadu Tree	Aadu Tree	Khejri Tree	Wall Cracks	Drain Pipe	Sirs Tree	Sirs Tree	Khejri Tree	
Date of egg Laying	3-3-13	22-3-13	2-3-13	10-3-13	27-2-13	5-3-13	3-3-13	1-3-14	5-3-14	3-3-14	10-3-14	6-3-14	15-3-14	14-3-14	11-3-14	11-March
Date of fledgling	24-3-13	13-4-13	25-3-13	3-4-13	21-3-13	27-3-13	25-3-13	24-3-14	28-3-14	25-3-14	2-4-14	28-3-14	7-4-14	7-4-14	4-4-14	1-April
Date of Leaving nest	18-6-13	11-7-13	20-6-13	28-6-13	15-6-13	22-6-13	24-6-13	20-6-14	23-6-14	21-6-14	1-7-14	25-6-14	5-7-14	6-7-14	2-7-14	29-June
Clutch Size	5	4	4	2	3	4	4	6	4	3	5	4	2	4	4	3.86
No. of fledgling young	4	3	0	1	2	3	2	4	2	2	3	2	0	3	2	2.20
Fledgling Rate	80	75	0	50	66	75	50	67	50	66	60	50	0	75	50	54.2

Parental Care of Young Ones

According to the observation table, there were a total of 15 clutches that hatched their young. The young birds left the nest between the 21st of March and the 13th of April. As a result, the nestlings left the nest after around 22 to 24 days. The baby birds emerged from their nests naked, with yellow beaks that will eventually become red. The young are born without eyes; on day 9, they have their first glimpse of the world, and on day 15, they receive their first feathers. In just two more weeks, they will have complete

feather coverage, with the exception of the rump region. Approximately five weeks after the eggs were laid, the only bird that fed the young was the male. After the fifth week, there is a significant shift in the lives of the nestlings, since this is the time when they first start looking out the entry hole (Plate:3). At this point, the female is also responsible for bringing in food, while the male spends the night nearby the nest in order to provide extra attention and watchfulness. The young birds leave the nest when they are eight weeks old in search of food. After that point, it is the responsibility of the male to provide the majority of their care. During the next week, the baby birds will remain concealed among the large leaves of the trees so that they may only be heard and not seen. When parents come to feed their young, they also reveal the hiding spots of their offspring. The young make an attempt to pursue the parent after it has taken flight. These early flights are awkward for the young birds, and they struggle to land successfully. They are the most susceptible to harm at this period in their development. However, in a very short amount of time, the fledglings develop the ability to fly and learn to feed by balancing their food on one foot. After only two weeks outside of the nest, the juvenile parakeets have already developed their ability to fly quickly. Another week passes, and they continue to feed on their own before joining the rest of the flock on their journey to the roosting spot. It was calculated that there were 2.20 chicks that successfully fledged for every adult bird (observation table). The estimate of 2.20 young that fledged from their nests each year between 2013-2014 was comparable to those discovered in Bangladesh and Southern India (Shivanarayan et. al 1981, Hossain et. al 1993), but it was substantially lower than those recorded anywhere else in India (Lamba 1966). Given that Lamba's (1966) estimate of fledgling success is nearly double that which was recorded in Bangladesh and Southern India (Shivnarayan et. al 1981, Hossain et. al 1993), it is plausible that predation rates were lower at the sites he used for his research. The success rate of nesting is not very great; on average, only 54.2% of all eggs placed result in the hatching of young birds (observation table).

Plate 3 male with nesting's

Conclusion

It was determined that this attractive and loud bird was able to reproduce quite well in the Shekhawati Region of Rajasthan, which led to their massive population builds ups. This was the overall conclusion. The primary take away from this research is that the Shekhawati region of Rajasthan is once again reaching the same level of richness in terms of its population of parakeets as it did in the past. It is beneficial for those who like observing birds, such as bird watchers, as well as regular people, who get a lot of satisfaction out of seeing a peacock dance in the rain. In addition to this, the conditions are ideal for achieving equilibrium in the ecosystem that exists in this part of the world. This article may be valuable in that the findings of this study may be utilised in public awareness programmes for the purpose of rescuing other species of endangered birds.

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