

Reproductive Performance of Alexanderine Parakeet, *Psittacula eupatria* (Linnaeus, 1766), in Shwesettaw Wildlife Area, Minbu (Saku) Township, Magway Region

Dr. Thin Thin Khaing
Associate Professor
Department of zoology
University of Magway

Dr. Khin Myint Mar
Associate Professor
Department of zoology
University of Magway

Abstract:- Reproductive performance of parakeet, *Psittacula eupatria*, was investigated in Phayar village, Shwesettaw Area, Minbu Township, Magway Region. Searching of nest was conducted weekly during breeding season. Characteristics of nest site, egg, clutch size and hatching success were investigated. The nest were made in the holes of *Tectona hamiltonian*, *Lannea grandis*, *Terminalia oliveri*, *Shorea oblongifolia*, *Shorea siamensis*, *Terminalia alata*, *Albizia chiensis* and *Acacia catechu*. The nest of *P.eupatria* was observed average height of 5.9m from the ground level. Parakeet eggs were white and unspckled. The length and width of eggs were 3.5cm and 2.9cm and the clutch size was 2-3. Average incubation period was 20-28 days and the breeding season was from December to April.

Keywords:- Parakeet, Reproduction, Nest, Egg.

I. INTRODUCTION

All animals including birds, mammals, reptiles, fishes and insects construct nests to reproduce their offspring. Although nest are constructed in different ways between and even within taxa, animals usually care their developing offspring in their nests. Most birds construct nest to avoid their young from predators and they carefully choose the location in which nests are built [1]. For reproductive success, the selection of a safe nesting site is an important, and some birds choose their nest sites so as to reduce the risk of predation. They select higher nests from the ground to escape their young from mammalian predators [2] & [3].

Parakeets have some particular performance regarding nesting and roosting. The parakeet enthusiastically searches their nest holes from May to December while copulation takes place in February to May. Parakeets choose specific tree species present at proper site, mostly near water bodies and agricultural fields. Make nests in tree holes present at a particular height. Parakeets collect stubbles, feathers and soft materials like cotton as nesting material [4]. Most of the parakeet nest sites are situated to the food crop area, near to water bodies and population may be found on the availability of food and major environmental factors. The parakeet population is depending on differential habitats necessity and habitat specialization [5].

This study was conducted with the following objectives:

- To know about reproductive behavioral activities and breeding efficiency of Alexanderine parakeet
- To observe the nest site, nest characteristics, eggs and clutch size.

II. MATERIALS AND METHODS

This study was conducted at Phayar village located in the Shwesettaw Wildlife area lies on the northern edge of the central plains of Myanmar (94° 31' 39" E - 20° 06' 14" N) and covering an area of 4 square kilometer. The study period lasted from December 2017 to September 2018. The collected parakeet species were identified referring to the taxonomic descriptions given by [6] and [7]. Searching of nest was conducted on a weekly during breeding season. Characteristics of nest site including vegetation species, average vegetation height, nest depth, height of cavity entrance from ground, the cross sectional area of the nest entrance hole (height and width), and girth of tree were also recorded. The length and width of each egg were measured by caliper and weighed by digital balance. The color pattern of egg and young were noted and recorded by digital camera. Clutch size were calculated by following formula

$$\text{Clutch size} = \frac{\text{Total Eggs}}{\text{Total Nest}} \text{ (Hoyt, 1979)} \quad [8]$$

Nest and fledgling success

Determine the nests successful if one or more eggs are hatch. For nests that failed effort was made to determine the cause of failure as predated, abandoned and unknown reason. This determination was based on the condition of eggs, nest, and surrounding vegetation. Nest was considered abandoned when eggs were felt cold to the touch.

$$\text{Hatching success} = \frac{\text{Eggs hatching}}{\text{Total Nest}} \quad [9]$$

III. RESULTS

The adult female *Psittacula eupatria* is generally green color. The female is lighter than the male. No collar or obvious blue head. They don't have the rose-pink collar or black stripe across the cheek patches. The bill is larger and duller, with no black under cheeks. Eyes are gray. The central tail feather is shorter. The legs are gray.

➤ Habitats Types of Study Sites

Phayar village was tree dominated area, there were plenty of *Terminalia oliveri*, *Tectona hamiltoniana*, *Albizzia chiensis*, *Acacia catechu*, *Shorea oblongifolia*, *Shorea siamensis*, *Terminalia alata*, *Lannea grandis* on hills. Bushes were scattered near Mann steam and on hills. Grass ground and cultivation, sesame field, maize field, sorghum field, chickpea field and banana plantation were found near Phayar village. Mann stream goes throughout the study site.

Nest site characteristics, nest building and nest and egg characteristics of *P.eupatria*

A total of 18 nests, 18 eggs and 36 hatchlings were found in the study period. The nests were made in the tree holes. The mean length of nest plants were 590cm, nest height from the ground were 45cm and the mean nest depth were 81 cm (Table 1). Nests were built by females. Each female laid only one clutch per season, incubation starts with first eggs and the incubation period was 23-28 days and female incubated the eggs. The breeding season lasted from November to April. The female laid their eggs directly on the floor of the nest cavity. The floors of most cavities were merely pieces of wood and clods.

Clutch size ranged from 2-3 eggs. The color of egg was white and they are unspckled. Length, width and weight of eggs were 3.5cm, 2.9cm and 8g respectively (Table 1). Hatching success was 2%.



Fig 1:- The Nest of *P. eupatria*

Nest-site on plants		Egg character	
Plant Height (cm)	590± 1.22	Weight	8 g
Girth (cm)	89±13.05	Length	3.5cm
Size of entrance holes (cm)	37.01±2.81	Width	2.9cm
Nest height from ground (cm)	450±1.4	Color	white
Nest depth (cm)	81±0.52	Clutch size	3

Table 1:- Nest-site on plants and egg characters of *P. eupatria*

IV. DISCUSSION

In the present study, the Alexanderine Parakeet, *Psittacula eupatria* was investigated for reproductive performance. All nests of studied species were found in hole of trees.

According to Politi and Hunter [10], cavity-nesting birds choose hollow spaces as nesting sites. The nest of cavity-nesting birds is depended on multiple factors such as habitat conditions, life-history traits and tree preferences of cavity-nesting birds. The populations of cavity-nesting bird are largely resident and non-migratory in nature.

The breeding season of studied species was December to April. Singh [11] found that parakeets have rather long breeding season in India, from January to July. The breeding pairs breed only one brood in every season. The parakeets began make the nest cavities in January, February and there after it protected them vigorously against its own kind and other birds, throughout the breeding season.

In the present study, a total of eight nests plant were found. They are *Tectona hamiltoniana*, *Lannea grandis*, *Therminalia oliveri*, *Shorea oblongifolia*, *Shorea siamensi* and *Terminalia alata*, *Albizzia chiensis* and *Acacia catechu*. Among these nest plant *Terminalia oliveri* was the most preferred by parakeets. The mean length of nest plants were 59 cm, nest height from the ground were 44 cm and the mean nest depth were 1 m.

Merritt *et al.* [12] reported that parrots utilize the large trees > 50 cm mean diameter at breast height and almost mean nest-tree diameters of >1 m at breast height for nesting. Parrots also selected cavities high above the ground, and 60 % of the parrot populations studied were found to use cavities on average greater than 9 m above the ground. Island species from both the Neotropics and Australia selected the lowest nest sites with mean height less 4 m above the ground.

Butler *et al.*[13] observed that Parakeets did not excavate their own cavities, and only one instance of enlarging an obtainable cavity. Waseem *et al.* [14] stated that different birds have a preference of different hole heights to make nests. Height may be important factor for nesting because it offers safety to new eggs, young ones and their parents. Many predators seek eggs, eating insects, reptiles and animals that enter the roosts near ground level for food. So, most height provides most protection from predators. Parakeets also have a preference of a safe place on tree to make nest on specific height from ground level.

The color of all studied eggs was white and unspckled. Ehrlich *et al.* [15] reported that bird eggs color are enormously diverse. In some relatively primitive bird groups such as cormorants and pelicans, eggs are uniform white on bluish color typical of their reptilian ancestors. Some cavity nesting species laid unmarked white eggs where there is no need for the eggs to be camouflaged. Some duck species laid pale eggs and they covered them with bits of nesting materials when they leave from brooding or among those species such as doves, owls and herons incubate without leaving the nest in all incubation period.

In the present study, the clutch size of *P. eupatria* was three. Clutch size regards as the number of eggs laid in a single brood by a nesting pair of birds. The type of nest constructed by birds is found to be a factor affecting clutch size in birds, with clutch sizes being larger in relatively secure nests than in more vulnerable nests [16] & [17]. Yom- Tov *et al.* [18] found there were no significant differences in clutch size among birds constructing four types of nests (cup, hole, enclosed nest, and enclosed mud nest) in southern South America. Egg size to change in a differing manner to clutch size, so that overall clutch mass does not vary between cavity and open nesters [20].

V. CONCLUSION

The nest of *P. alexandri* was observed moderately height of trees from the ground level, all nests were found in cavities made by other birds. Eggs were white and unspckled. The length of egg of *P. eupatria* was 3.5cm and width 9cm. The clutch size was 2-3, average incubation period was 20-28 days and the breeding season was from December to April. Hatchlings (74.60%) were observed as egg success. It may be concluded that these basic information should be useful for further research about population and conservation of parakeets.

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