



STUDY OF THE NESTING ECOLOGY OF RED-WATTLED LAPWING (*VANELLUS INDICUS*)

Dr. Arvind Kumar

Assist. Prof.,- Zoology
GDC, B.B. Nagar, Bulandshahr
zooaayush@gmail.com

ABSTRACT

Birds are found worldwide almost in all the habitats. Nests are the niche of bird which provide them shelter and support in reproduction. Nests are the structures constructed by the birds to lay their eggs, protect their offspring and also for the survival of the bird itself. It is important to understand the ecology of nest for conservation of birds. Durability of nest is depends on the type of nesting material used. This study was carried out in agriculture land of Kapoori Govindpur, Saharanpur (U,P,) India, during summer season from March to June 2021. From the field survey total 05 nests were found in which 16 eggs were recorded. Selection of nest site is an important factor for bird's reproductive success. A trend to form a nest towards near the source of water body was observed by this bird due to rapidly shrinking water body during April to June. During study it has been observed that the environmental factors such as humidity, heavy rain, temperature, storm and human activities are effect to nest ecology of Red-wattled Lapwing.

Key words : Nesting ecology, reproductive success, survival rate, Red-wattled Lapwing.

Received: 01 Sept. 2021

Accepted: 11 Sept. 2021

Published: 28 Oct. 2021

INTRODUCTION

Birds are unique creatures with wonderful ability to fly. Birds are found worldwide almost in all the habitats. Nests are the structures constructed by the birds to lay their eggs, protect their offspring and also for the survival of the bird itself. Unusual nesting sites were also recorded in lapwings on roof-tops in residential areas, stones between railway tracks and some nests was observed very close by road i.e. only 14 feet away. (Mundkur,1985; Tehsin & Lokhandwala, 1982; Reeves,1975, and Patnaik,1980). Sometimes nest observed with pebbles, goat or hare droppings (Sharma,1992). Selection of nest site is an important factor for bird's reproductive success. An individual's fecundity and survival is likely to depend upon the choice of nest site which may in turn determine the structure and growth rate of populations (Clark et al, 1999). Nests are constructed at the sites where the individuals are safe from the predators and they have high reproductive success. The quality of the sites where nest are constructed varies in space along with time. This variation due to different environmental factors which also affect on their reproductive success (Narwade & Fartade,2008 and Narwade et al.,2010).

Human disturbances also affect on bird's behaviour. Design of nests are different for different species of birds. Different Species of birds use different nesting materials such as twigs,grass,leaves,mud,ribbon,spider web etc. The bird nest may be located on tree ,on the roof, on the ground ,on a platform over water etc. It is always a difficult task to find nests of ground nesting birds since the eggs are cryptically colored and usually matches the ground color. Red-wattled Lapwing usually nests on ground scrape or depression (Ali and



Ripley,1980). Considerable diversity was observed in nesting sites of the lapwing. A trend to form a nest towards near the source of water body was observed by this bird due to rapidly shrinking water body during April to June. It was also observed that nesting lapwings will attempt to dive bomb or distract potential predators (Bhagwat,1991 and Kalsi & Khera,1987 and Naik et al.,1961). Incubation usually carried out both by the male and female and incubation period is normally 28 to 30 days. The chicks are nidifugous and precocial which means that they leaves the nest and follows the parents soon after hatching. Usually egg mortality is high due to predation by mongooses, crows and kites. Chicks have a lower mortality and their survival improved after the first week (Desai and Malhotra,1976). The chicks with perfect camouflage typically lie still when alarmed (Ali & Ripley,1980). Agriculture has been determined as one of the important factor in survival of ground nesting birds such as Red-wattled Lapwing. Some positive as well as negative effects agricultural activities on breeding success of lapwings were recorded. Despite high disturbance overall breeding success rate in Lapwing was found affected by various agricultural activities. It was observed that changing crop pattern and climatic factors such as rainfall affect the breeding success of Red-wattled Lapwing. This paper focused to know about nesting ecology.

MATERIAL AND METHODS

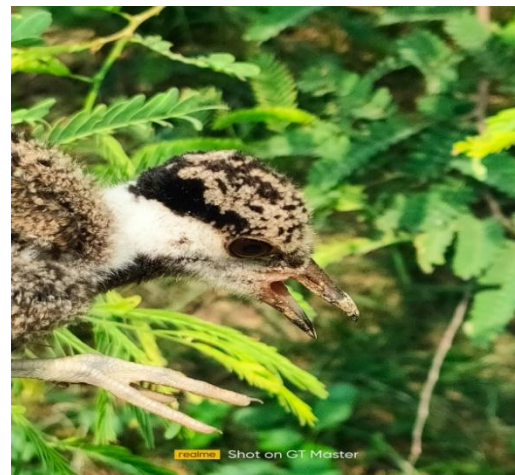
The study was concentrated in agriculture land of Kapoori Govindpur, Saharanpur (U,P,) India. It lies between 29.78° N and 77.73° E at a sea level altitude of 269 meters. From the field survey total 05 nests were found in which 16 eggs were recorded. Study was carried out during summer season from March to June 2021. The major breeding activity of Red-wattled Lapwing was observed in summer until onset of monsoon. Once a daily observations and counting of the nests and eggs were carried out from mid March to last June 2021. From the field survey total 05 nests were found in which 16 eggs were recorded. The nesting ecology was observed visually by high quality binoculars F-15 (Falcon 15×70). Photographs were taken by Realme Shot on GT Master mobile.

RESULTS AND DISCUSSION

From this study total 05 nests were found in which 02 nest on roof of the building and 03 nest in agriculture land) in which 16 eggs were recorded. Nests are difficult to find since the eggs are cryptically coloured and usually matches the ground pattern. The eggs hatch in 28 to 30 days. The reproductive success is about 40%. Egg mortality is high (approximately 40%) due to predation by mongooses, crows and kites. Study on effect of agricultural practices on breeding success of Red-wattled Lapwing *Vanellus indicus* was carried out by Narwade et al.,2010. After harvesting in summer season from March, males of Red-wattled Lapwing starts display to attract the partners. After successful selection, pair of birds starts scanning the area for suitable nesting sites. It was found that lapwings try many areas before finalization of the nesting site. For nesting, factors such as minimum disturbance, open area for vigilance and availability of water for belly soaking for lapwings were found very essential. Some time possible reasons for nesting failures in May and June are may be effect of agricultural practices such as ploughing and presence of jackal (Narwade et al.,2010). During study It has been observed that the Environmental conditions such as



heavy rain ,Storm and human activities, predators disturb their breeding activities which decline their breeding success.



Incubation of eggs in nest, Chick and Juvenile of Red-wattled Lapwing

Red-wattled Lapwing needs water to soak their belly feather to cool the eggs during hot weather (Sundararaman,1989), this phenomena also found in our study. We measured the average distance between nearest water source and nesting site was found in between 40-190 feet. Association between birds and agriculture is a well known subject. Birds help in pollination and subsequently in to the crop yield. Agricultural activities determine fate of many birds providing feeding and breeding sources. In our study it was found that change in cropping pattern and land use has been responsible for survival of Red-wattled Lapwing. Other factors such as pesticide use, irrigation schemes and use of machineries for agricultural practices may be affecting the survival of Lapwing and ground nesting birds (Sujit et al., 2011).



REFERENCES

- Tehsin, R. H. and Lokhandwala (1982). Journal of Bombay Nat. Hist. Soc., 79 : 414.
- Zar, J. H. (2007). Biostatistical Analysis. 4th edn. Pearson Education, Inc.
- Sundararaman, V. (1989). Journal of Bombay Nat. Hist. Soc., 86 : 242.
- Sharma, S. K. (1992). Newsletter for Birdwatchers, 32(7&8) : 19.
- Saxena, V. S. (1973). Indian Forester, 99(1) : 33-35.
- Reeves, S. K. (1975). Newsletter for Birdwatchers, 15(2) : 5-6.
- Narwade, S. S.; K. M. Fartade and M. M. Fartade (2010). National Journal of Life Sciences. Patnaik, H. P. (1980). Newsletter for Birdwatchers, 20(11) : 9.
- Narwade, S. S. and Fartade, M. M. (2008). Buceros, 13(2) : 7-9.
- Naik, R. M.; P. V. George and D. B. Dixit (1961). Journal of Bombay Nat. Hist. Soc., 58 : 223-230.
- Mundkur, T. (1985). Journal of Bombay Nat. Hist. Soc., 82 : 194-196.
- Kalsi, R. S. and S. Khera (1987). Pavo, 25 : 43-56. Mayfield, H. (1961). Wilson Bulletin, 73 : 255-261.
- Desai, J. H. and Malhotra, A. K. (1976). Journal of Bombay Nat. Hist. Soc., 73 : 392-394.
- Clark, W. R., Schmitz R. A., Bogenschutz T. R. (1999). Site selection and nest success of Ring-necked Pheasants as a function of location in Iowa landscapes. Journal of Wildlife management, 63(3): 976-989.
- Bhagwat, V. R. (1991). Lapwings and snake Newsletter for Birdwatchers, 31(5&6) : 10-11.
- Ali, S. and S. D. Ripley (1980). Handbook of the birds of India and Pakistan. 2nd edn. Oxford University Press. pp. 212-215.