

## BREEDING ECOLOGY OF RED-WATTLED LAPWING (*VANELLUS INDICUS*) IN PERADENIYA UNIVERSITY PREMISES

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### Introduction

Red-wattled Lapwing (*Vanellus indicus*) is usually found along the edges of tanks, dry paddy or any open land not far from water in the low land and lower hills (Harrison, 2005). However, there is an expanding population of Red-wattled Lapwing in Peradeniya University premises for several years. Usually they live in pairs during the day time. Red-wattled Lapwings lay eggs in shallow depressions in open or stony ground during April to September (Harrison, 2005). The main objective of this project was to study the breeding ecology of Red-wattled Lapwing (*Vanellus indicus*) in Peradeniya University premises. Specific objectives were to identify breeding sites, clutch size, incubation period, monitor the hatching success of eggs, mortality of chicks and possible causes of mortality.

### Materials and Methods

A preliminary survey was carried out to identify the nesting sites of Lapwings in the University premises. Breeding sites were identified by observing pairs of Lapwings inhabiting a particular location. Then these sites were thoroughly searched for nests. Observations were made regularly from 4.30 pm to 7.30 pm. When a nest was found, the number of eggs laid in the nest was recorded. Egg diameter

was measured using a venire calliper. Observations were made on the nests until eggs hatched. After hatching the number of chicks that emerged was recorded. Moreover, from about 7.30 pm up to 8.30 pm their nocturnal behaviour was recorded. But the night survey was conducted only at the playground and Faculty of Arts premises. Observations on parental care of Lapwings were recorded. Study was conducted from March to August 2009.

### Results

During this observation period, 13 breeding pairs of Lapwings were found, one in Faculty of Science (FOS), three in Faculty of Arts (FOA-1, 2 & 3), five in Faculty of Engineering (FOE - 1, 2, 3, 4 and 5), one in the Cricket ground (CP), two in the Hockey ground (HG - 1 & 2) and one close to the Senate building. Even though 13 pairs were recorded only 11 nests were found (Table 1). In each nest 4 eggs were recorded except in FOE-5 and Senate building. Out of 40 eggs, only 35 hatched and 10 reached the size of adults. Nineteen chicks survived after hatching for one week, while others died within the first week due to various reasons. Highest survival rate was recorded from HG-1 where all chicks became adults, while in site FOA-1, 3 chicks survived to adult stage. Hatching and growth are in progress in site FOE-2.

**Table 1. Nesting sites, number of eggs laid and the hatching success of lapwings during the study period.**

Event	FOS	CP	HG		FOA			FOE				
			1	2	1	2	3	1	2	3	4	
A	4	4	4	4	4	4	4	4	4	4	4	4
B	2	4	4	4	4	4	2	4	-	3	4	
C	0	2	4	2	3	2	2	2	-	0	2	
D	0	1	4	1	3	0	1	0	-	0	0	

A = number of eggs in the nest, B = number of hatched eggs, C = number of chicks after a week, D = number of chicks reach to size of adult

According to observations lapwings preferred to lay eggs on open grassland with little grass cover. Eggs are well camouflage in the absence of an elaborate and conspicuous nest. Therefore, it is not possible for an egg poacher to easily identify the nest. Only females keep eggs while males guard the nest. In an open area male birds stayed about 10-15 m from the nest whereas in an area with disturbances (near foot paths) they stayed within the close proximity (2-5 m) to the nest. Main role of male during nesting was to guard the nest. Nesting birds attacked and chase away predators such as dogs, cats and other birds. Occasionally females also left the nest to attack predators when they are closer to the nest.

In general, two of the eggs in the nest are fairly large and the other two eggs are smaller; mean diameter of eggs was 38.5 mm. On average 34 days were taken for eggs to hatch. Initially two eggs hatched and a day after the other two eggs followed. When eggs hatch, adults are very aggressive. Usually chicks stay with the female while male guards the nesting site and directs the predators or any other disturbances away from the chicks.

When there is danger, chicks hide under the wings of adults. Lapwings maintain a territory during the day time. Usually their territory is well marked. If one Lapwing crossed another's territory, the invader is attacked and repulsed. But these activities were rarely observed. Even though a pair of Lapwings maintained a territory at day time, at night all of them get together in a particular area and form a flock. Although three territories were found during the day time in the University ground, a flock of 26 Lapwings were observed at night. We observed 10 Lapwing chicks until they reached adulthood. It took 65 to 70 days for chicks to reach adulthood.

### Discussion

We observed 4 eggs in each nest indicating that the maximum number of eggs laid by Red-wattled Lapwing in one nesting is four. Though they laid same number of eggs hatching success was different. This could be due to the weather pattern during this period (most of time with heavy rains) or sometimes eggs may have got damaged. Although 87.5% (35/44) of eggs hatched only 54% (19/35) of the chicks survived the first week. The number that reached the adulthood was yet smaller, 28.6%

(10/35) from the hatched eggs. This low survival of chicks was due to several reasons. Chicks were killed by dogs and cats, some fell in to deep ditches and some chicks near foot paths got trampled by people. The highest survival of chicks was recorded from HG-1. This is due to this area being a tennis court, surrounded by nets. Therefore, predators cannot enter the area and chicks can easily escape from predators through the nets. The highest motility was recorded from FOE sites. This could be due to this area being comparatively less open, hence the birds were not able to detect the dangers early enough to escape. Several predators were also observed in this site; dogs, cats and birds such as Brown Fish Owl (*Budon zeylonensis*) and Shikra (*Accipiter badius*). There was also lot of disturbance from people.

After an egg hatches, female carries parts of the shell and remove them away from the territory. In times of danger, female Lapwings directed chicks to hide in places such as under a bush or scrub. Time of development of chick to adult size may vary from place to place. For instance, HG-1 and FOA-1 chick grew faster than the FOA-3. This is due to HG-1 and

FOA-1 is less disturbed and less predator threat than FOA-3. Therefore chicks spent more time feeding in FOA-3. At night, CP, HG-1, HG-2 FOA-1, FOA-2 and FOA-3 Lapwings make a flock in cricket ground or area near by. This may be to avoid predators at night.

### **Conclusion**

Breeding season of Red-wattled Lapwings in the university premises extends from March to August. Four eggs are laid in a clutch. Though Lapwings show parental care, overall nesting success of eggs is 25% due to several reasons. While nesting, females guard nests during day and night, males and non nesting pairs form a flock at night and stay in one place. Peradeniya University premises provide an ideal venue to study breeding ecology of Red-wattled Lapwings where long term monitoring is possible. This breeding population of Red-wattled Lapwings could be used as a model in animal population studies if continuous monitoring is carried out.

### **Reference**

Harrison, J. (2005). A Field Guide to the Birds of Sri Lanka, Indian edition. Oxford University Press, New Delhi. 299.