AT KOSGODA TURTLE ROOKERY, SRI LANKA

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Introduction

Sea turtles exhibit strong nesting site fidelity. They migrate between their foraging areas and nesting sites with a high degree of accuracy. The olive ridley turtle, *Lepidochelys olivacea,* is a pantropical species common in the Pacific and Indian oceans, where major nesting beaches and foraging areas occur. Females do not reproduce every year. The duration between two reproductive seasons, the re-migration interval, is one to eight years for olive ridleys (Tripathy and Pandav, 2007). Turtles have a tendency to re-nest in relatively close proximity (0 to 5 km) to the original nesting site during subsequent nesting attempts within a nesting season (Miller, 1997). Within a nesting season solitary nesters are known to use multiple beaches for oviposition but arribada nesters display nest site fidelity (Kalb, 1999). Only solitary nesters are recorded in Sri Lanka. The objective of this study was to examine the site fidelity of re-migrating olive ridleys in successive nesting seasons and re-nesting of females within a nesting season at the Kosgoda turtle rookery.

Materials and Methods

Olive ridleys nesting at the Kosgoda beach (6°33 N, 80° 02 E) in the south-western coast of the island was studied from August 2003 to July 2008. The nesting was monitored along one kilometre stretch of beach throughout the day and night for five consecutive years. The nesting females were tagged using titanium flipper tags (Stockbrands Co (Pvt.) Ltd., Western Australia) carrying a unique identification code. Total number of new turtles (untagged) and the number of tagged re-nesting turtles and the re-migrated turtles that had returned to Kosgoda (after having been tagged the previous season) were recorded. The re-nesting and re-migration interval of the tagged females were determined.

Results and Discussion

During the study period 76 individual olive ridley turtles were tagged and 169 nests were observed (Figure 1). Of the 169 nests, 122 were laid by the 76 tagged individuals. Another 47 nests were found during beach patrols. However, these nesting turtles were not encountered during the regular beach patrols.

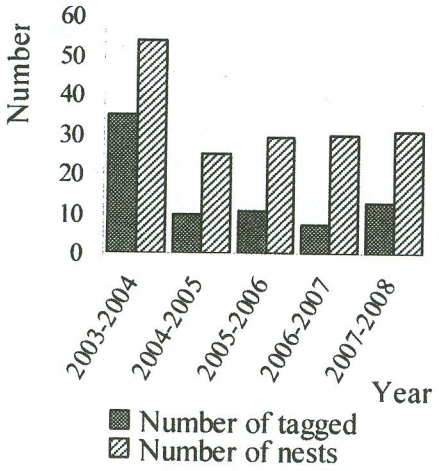

Figure 1. The number olive ridleys tagged and the number of nests from 2003 to 2008

Some females nested only once on the study site while others laid several times during the same nesting season and also during the following nesting seasons (Tables 1 and 2). Only 17.8 % of females laid eggs in more than one nest during a single nesting season (range 2 to 3). Three individuals laid eggs in three nests per nesting season. The average inter-nesting period within a season was 19 days (range 12 to 29 days, SD ± 4.05). The re-nesting frequency of olive ridley turtles was 5.6% at the Rekawa beach (Ekanayake *et al.*, 2004). The average inter-nesting period was 22.09 days at Rushikulya, India (Tripathy and Pandav, 2007). Among olive ridleys, solitary nesters oviposit on 14 day cycles whereas arribada nesters approximately every 28 days.

Table 1. Re-nesting frequency within a single nesting season.

Number of nests per season	Number of turtles	Total nests
One	83	83
Two	15	30
Three	3	9
Total		122

Of the 76 nesters, 19 visited the same site in two consecutive nesting seasons, five visited three seasons while one turtle visited four seasons (Table 2).

Table 2. Re-migration frequency within multiple nesting seasons.

Number of nesting seasons	Number of turtles
One season	51
Two season	19
Three season	5
Four season	1
Total	76

The re-migration interval for the olive ridley turtles nesting at Kosgoda ranged from 1 to 4 years while 1-8 years has been recorded for olive ridleys nesting in the beaches of India (Tripathy and Pandav, 2007). However, long term observations are required for comparisons.

This is the first study in Sri Lanka, which recorded such a frequent olive ridley re-nesting and re-migration behaviours. Results of this study show

evidence that the olive ridleys nesting at Kosgoda show high degree of nest site fidelity and solitary nesters use the same beach for re-nesting.

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References

Ekanayake, E.M.L., Ranawana, K.B. and Kapurusinghe, T. (2004). Estimation of the average number of nests for green turtle, on the Rekawa beach in Southern Sri Lanka. Three-year study from September 1996 to September 1999. pp. 160-161 In: Coyne, M.S. and Clark, R.D. (compilers). Proceedings of the 21st Annual Symposium on Sea Turtle Biology and Conservation, NOAA Technical Memorandum NMSF-SEFSC-528.

Kalb, H.J. (1999). Behavior and physiology of solitary and arribada nesting olive ridley sea turtles (*Lepidochelys olivacea*) during the inter-nesting period. Ph.D. Dissertation, Texas A&M University, College Station, USA, 123.

Miller, J.D. (1997). Reproduction in Marine turtles. pp. 51-81. In: Lutz, P. L. and Musick, J. A.(Ed.). The Biology of Marine Turtles, CRC Press, Washington DC.

Mrosovsky, N. and Provancha, J. (1992). Sex ratio of hatchling loggerhead turtles: data and estimates from a 5-year study. Canadian Journal of Zoology, 70: 530-538.

Tripathy, B. and Pandav, B. (2007). Beach Fidelity and Inter-nesting Movement of Olive Ridley Turtles at Rushikulya, India. Herpetological Conservation & Biology, 3(1):40-45.