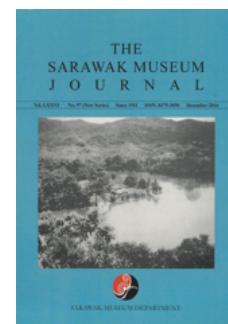




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SHORT NOTES ON THE HATCH RATES OF GREEN TURTLE EGGS AT SATANG BESAR AND TALANG BESAR TURTLE ISLANDS IN SARAWAK

Wong Siew Fui and Leh Moi Ung

ABSTRACT

A total of 32 egg clutches comprising 3,249 green turtle eggs were replanted at Satang Besar and Talang Besar turtle islands in south-west Sarawak in August 2012 and March-April 2013. Each clutch of egg is divided into half and replanted in the sand beach hatchery of each island at nest bottom depth of 62 cm. The hatch rates of green turtle eggs increased successfully at both turtle islands from 55%-73% to 70%- 100%. There were two nests (SM042 and SM046) out of the 32 nests replanted that have very low hatch rates of 5.1% and 43.8%.

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Abstract

A total of 32 egg clutches comprising 3,249 green turtle eggs were replanted at Satang Besar and Talang Besar turtle islands in south-west Sarawak in August 2012 and March-April 2013. Each clutch of egg is divided into half and replanted in the sand beach hatchery of each island at nest bottom depth of 62 cm. The hatch rates of green turtle eggs increased successfully at both turtle islands from 55%–73% to 70%–100%. There were two nests (SM042 and SM046) out of the 32 nests replanted that have very low hatch rates of 5.1% and 43.8%.

INTRODUCTION

Green turtles (*Chelonia mydas*) has been laying eggs at the turtle islands of Sarawak for centuries. It is an endangered and totally protected species in Sarawak (Leh 1994). Another three turtle species were recorded at the turtle islands in Sarawak, namely the Loggerhead Turtle (*Caretta caretta*), Hawksbill Turtle (*Eretmochelys imbricate*) and Olive Ridley Turtle (*Lepidochelys olivacea*) (Chai *et al.* 1999).

Green turtle breed all year round and landings peak from May to September each year due to the dry season and bright moon at the beach (Banks 1937). The rough monsoon weather from November until April the following year is unfavourable for the green turtle to land and lay eggs at the islands. During the north-east monsoon, the rough sea disperses the sand at the beach head of the island rendering it unsuitable for egg laying (Harrisson 1951).

At present, the major threats to green turtles in Malaysia are identified as habitat degradation, marine debris, predation of young hatchlings by crabs and fishes, accidental and opportunistic captured by fisherman trawls and gill nets (Salleh and Sah 2014; Sim *et al.* 2015). The eco-tourism industry also affects the marine turtle landings when visitors walk on the breeding beach at night (Yeo *et al.* 2007). At the turtle islands of Sarawak, the populations

Table 1: Number of turtles landing, eggs collected and percentage hatch rate of green turtles egg at Talang Besar and Satang Besar turtle islands in Sarawak from 2009 until 2013.

Year	Talang Besar Island			Satang Besar Island			
	No. of turtles landing	No. of eggs collected	No. of eggs hatched	Percentage of egg hatched	No. of eggs collected	No. of eggs hatched	Percentage of egg hatched
2013	2,386	214,525	125,453	58.48%	16,830	12,307	73.13%
2012	1,561	136,953	94,723	69.16%	28,584	18,103	63.33%
2011	2,178	188,893	103,451	54.77%	17,996	10,667	59.27%
2010	2,030	189,404	126,590	66.84%	22,646	15,626	69.00%
2009	1,709	159,031	109,049	68.57%	30,619	21,518	70.28%

(Source: Sarawak Turtles Board 2013)

of marine turtles have declined and reach a low level since 1985 (Sarawak Turtles Board 2014). Based on the records of Sarawak Turtles Board, the percentage of egg hatching at Talang Besar Island and Satang Besar Island is less than 70% from 2009 to 2013.

The data on the hatch rate of green turtle eggs at the Sarawak turtle islands in the present comparative study is shown in Table 1. The hatch rate of green turtle eggs ranged from 59%–73% at Satang Besar Island and 55%–69% at Talang Besar Island.

The objective of this preliminary study is to improve the hatch rate of green turtle eggs at the turtle islands of Sarawak, by finding ways to improve the conservation procedure. It is one of the important strategic approaches for the long term conservation of our green turtles.

MATERIAL AND METHODS

Satang Besar Island and Talang Besar Island located in south-west Sarawak were gazetted in 1999 as the Talang-Satang National Park with a total area of approximately 19,400 hectares (Fig. 1). The aim is to establish a turtle sanctuary to conserve the local green turtle populations in Sarawak (Hazebroek and Abang Morshidi 2006).

Satang Besar Island and Talang Besar Island have open beaches with little or no vegetation. Along the beaches, are some coconut trees and shrubs. The protected hatchery sites on the open beaches are exposed directly to the sun without any vegetation to provide shade (Chai *et al.* 1999).

The present study was conducted at Satang Besar Island in August 2012 and Talang Besar Island in March and April 2013. The study sites of both islands were located at the centre of the turtle egg-laying beaches protected within a fenced parameter. Seven clutches of eggs from Satang Besar Island and 25 clutches of eggs from Talang Besar Island were collected from the natural beach in the early morning after they were laid by the female green turtles the night before. The eggs were carefully excavated by hand and placed on an acid free paper. Then, the eggs from each clutch were divided into halves. Particular attention was taken to ensure that the eggs do not come into direct contact with our bare hands and moisture from the wet morning sand surface.

The eggs were then collected in a covered plastic pail and were replanted between 0630 to 0730 hours to avoid any direct exposure to the sun

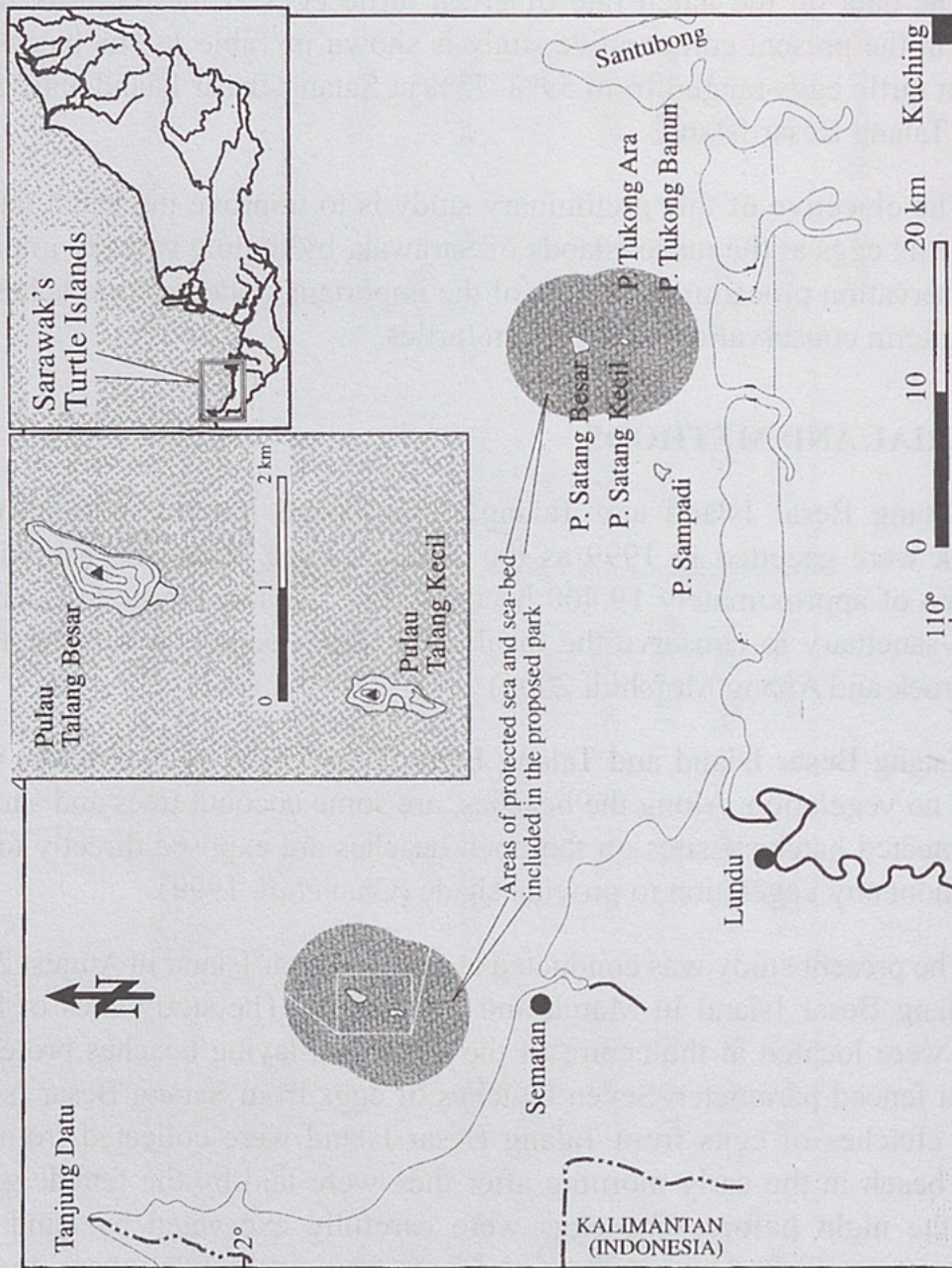


Fig 1: Locations of the Satang Besar Island and Talang Besar Island in Sarawak, Malaysia.