

ANDAMAN & NICOBAR SEA TURTLE PROJECT

PHASE VII

10/11
RPT
BHA/70796

Submitted by Satish Bhaskar, May 1995.

- Objectives :
1. Surveys to locate prime nesting and feeding areas of sea turtles.
 2. Monitoring of known nesting areas and nesting populations.
 3. Identifying threats to sea turtles, ^{to} their habitats ^{fauna} and to marine and terrestrial ^{that} interact with sea turtles

Investigator : Satish Bhaskar

Period covered by Phase VII : 1 month (24-3-95 to 25-4-95).

Period of actual field study : 4 days (31 March to 3 April 95).

<u>Islands surveyed</u>	South Sentinel	31 March to 2 April 95.
	North Brother	2 April 95.
	South Brother	2 April 95.
	Sister (North-west)	3 April 95.
	Sister (South-east)	3 April 95.
	Twin (East)	3 April 95.

South Sentinel was surveyed for sea turtles for the first time. In addition, Passage Island's shoreline was checked from a boat and an exposed reef lying about 400 metres to the south-west of South Brother Island was surveyed.

Findings : Data from South Sentinel Island :
- South Sentinel was found to be the island most favoured by nesting green turtles in the entire Andaman and Nicobar archipelago. About

550 craters made by nesting green turtles were counted on the island on 1 April 1995.

- Green turtles came up to nest at least 6 times during the three nights 30/31 March, 31 March/ 1 April and 1/2 April 95; when collated with information available from earlier visits to the island by naturalists and scientists (Davis and Altevogt, 1976 and Alcock, 1902) and with nesting data from South Reef Island (current project, Phases 2,3,4,6,6A), this points to year-round nesting by green turtles on South Sentinel.
- No evidence of nesting by other species of turtles was found on South Sentinel, though this cannot be ruled out, in particular, nesting by hawksbills.
- A large proportion (unquantified as yet) of sea turtle nests on South Sentinel are predated upon by the Water Monitor Lizard population (Varanus salvator), whose_A appears to exist here in one of the heaviest densities in the archipelago, and is also the least shy of humans. Sea turtle and monitor lizard populations have, of course, reached a balance over the millenia on this relatively undisturbed island. It is clear that monitors form as important a part of the fauna of the island as the more publicized Coconut Crab (Birgus latro) and sea turtles.
- A party of five Bengali-speaking poachers was present on South Sentinel on our arrival there on 31 March 95. They had concealed in the forest three live green turtles -- all mature females caught, they said, while nesting on the island. The men claimed to be inhabitants of Hut Bay, Little Andaman. In all likelihood, poaching results in a major drain on the nesting sea turtle population on this remote island during the calm period (December to May) during which landing by boats is possible.

Poachers on the western Twin island :

- Another party consisting of 9 Bengali poachers based at Wandoor was encountered off the Twin islands on 3 April 95. They had stored bags of freshly-collected sea cucumbers on the western Twin island. Commerce in sea cucumbers in the Andamans has increased rapidly in recent years - parties of Burmese have been illicitly diving for sea cucumbers in Andaman waters every year. All the islands visited by the investigator during the current survey are Wildlife Sanctuaries. The Twin Islands, in addition, fall within the boundaries of the Mahatma Gandhi Marine National Park (the erstwhile Wandoor Marine National Park). The nine poachers were accordingly nabbed by the Forest Department and chargesheeted.

Deforestation on South Brother Island :

- A sea turtle survey of the island in January 1984 (Bhaskar 1984) had found the vegetation intact. During the present survey, there were found about 5 recent but deserted camps, illegally made, in all likelihood, by shark fishermen. The forest on the island had been cleared to the extent required to make these camps and interconnecting footpaths. However, green turtles and Hawksbill turtles still nest on the island (see Table 1). The existence of *illegally dug waterholes on the island was not investigated*

Deforestation on North Brother Island :

- As was the case on South Brother Island, the 1984 survey had found the vegetation on North Brother undisturbed. During the present survey, the remains of about 10 camps were found, in addition a waterhole that had been dug. Here too, the forest had been sectioned by footpaths that connected these camps. The rotting heads of six sharks were found on the island's southern shore. The number of turtle nests appeared to have decreased over the 11 years separating the two surveys (see Table 1) possibly due to increased human presence and also to the fact that a lighthouse

had been constructed on the island's northeastern side - the broad beach existing there in 1984 was found to have all but disappeared, its sands most probably having been used in the construction of the lighthouse rather than having been depleted by sea erosion.

Data from the Sister Islands :

- Fishermen in two "dunghies" (mechanized dugout boats) based on South Andaman were found operating a net immediately off the Sister Islands on 3 April 95; at our approach they hauled up their net and departed northwards. Turtle nesting intensity on the southeastern Sister island was similar to that during the 1984 survey (see Table 1). A monitor lizard's track was seen on the smaller of the Sisters (the northwestern Sister), whereas the 1984 survey had failed to find any.

Nesting by turtles

- The total number of hawksbill turtle nests found during the April 1995 survey on the Brother Islands, the Sister Islands and on the eastern Twin island was only 7 less than in January 1984 (see Table 2), suggesting that in this area at least, hawksbills have not declined drastically during the last decade. Greater numbers of craters made by green turtles were seen in 1995 as compared to 1984 (see Table 2). An increase in green turtle nesting population hardly being likely given the frequency with which they are drowned in shark nets, a possible explanation is that several of the craters attributed to nesting green turtles on South Brother Island in 1995 may have been made by humans digging for turtle eggs.

Table 1. Nest counts during surveys in 1995 and 1983/84.

Island	Hawksbill nests	Green turtle craters	Dates of survey	Source
South Sentinel	0	550	31 March to 2 April 95	Present survey
North Brother	(78)	(0)	11 Jan 84	Bhaskar 1984
	14	16	3 Apr 95	"
South Brother	(34)	(37)	11 Jan 84	"
	40	111	2 Apr 95	"
The Sisters	(4)	(0)	11 Jan 84	"
	13	2	3 Apr 95	"
Eastern Twin	(13)	(0)	22-23 Nov 83	"
	55	3	3 Apr 95	"

Figures in parenthesis relate to the 1983/84 survey.

Table 2. Total nests on the Brother Islands, the Sister Islands and on the eastern Twin island.

	Hawksbill nests	Green turtle craters
Count during the 1983/84 survey	129	37
Count during the 1995 survey	122	132

Table 3. Nesting by green turtles on South Sentinel Island.

Date	Number of nests		Total
	North and northeastern beach	Southeastern beach	
30/31 March 95	3*	1	4
31 Mar/1 Apr "	0	1	1
1/2 April "	1	?	1**
3-night total	4	2**	6**

* Eggs and respective turtles taken by persons
 ** Minimum figures

Description of South Sentinel Island :

The island is shaped like a gorged tick with the head facing east. It is roughly 2½ sq.km in area and has a perimeter of about 6 km. A sandy beach about 1 km in length exists on the north and north-east shores of the island. This beach is separated from another sandy beach on the southeast of the island by a stretch of cliff about 500 metres long. About 90% of the turtle nests on South Sentinel were found on these two beaches -- c. 200 on the northern beach, c.300 on the southeastern beach and about 50 nests elsewhere on the island's coast. The two spots on the island where a landing by a small boat could be effected in fair weather lie near the eastern end of the northern beach, and on the southeastern beach, depending on the direction of the prevailing swells.

The island is well forested, Pandanus stands forming the dominant coastal vegetation. A few coconut trees are present. On the island's west coast there exists a creek (which is believed to flow only during the wetter months) which feeds a swampy area in the interior of the island. At night, swarms of mosquitoes make the island extremely inhospitable. There also exist rats (of an undetermined species) in large numbers, making it imperative to stow all rations securely within boxes before nightfall. There do not appear to be any waterholes on the island, though no attempt was made to find one in the interior of the island.

RECOMMENDATIONS

1. All "dungies" and fishing craft need to have their registration numbers painted prominently in bold white letters at least 20 cm high, on either side of the bow so as to facilitate immediate recognition by the naked eye from a minimum distance of 50 metres. Illicit activities such as poaching, unlicensed timber collection and fishing activity, and camping on island-sanctuaries will be curtailed if the Forest Department is empowered to confiscate craft not displaying their number correctly.
2. The wasteful sharkfin industry (in which the body of the shark is discarded) needs to be abolished from the islands. Considerable numbers of sea turtles are caught accidentally in shark nets.
3. The collection of sea cucumbers will directly affect marine invertebrate life and beds of sea grass (a staple food of green turtles and dugongs) and will indirectly affect several other marine species. Holothurians, corals, ornamental fish and sea urchins all need to be listed under Schedule I of the Indian Wildlife Protection Act.
4. The Forest Department needs to acquire fast, seaworthy, shallow-draught craft to patrol the island-sanctuaries between the Twin Islands and Little Andaman including South Sentinel and the northern and western shores of Little Andaman. Each island needs to be patrolled at least once every 10 days during the calm season, December to May.

Incidental data

Robber crabs :

Convincing evidence of the occurrence of robber crabs (Birgus latro), was found on South Brother Island, where coconut trees exist. On the island's northwest shore, where most of the coconut trees occur, there were 4 sets of tracks made by robber crabs on the beach. On the island's southern shore, a pile of fibres evidently shredded by a robber crab from the husk of a coconut was present. South Brother is only the second island in the Andaman group from which robber crabs have been recorded; a third may be North Brother Island, where Shri K. Kannan, then Junior Engineer in the Department of Lighthouses and Lightships reported finding heaped, shredded fibres of coconut husks under coconut trees in 1983.

On South Sentinel Island, three robber crabs, all adults, came into our campsite at 4 p.m. on the day we arrived, clearly attracted either by the smells from our rations (powdered milk or biscuits or sunflower oil or tea) or from cooking food (rice or lentils). Two other individuals were found in the open in daylight the next day at 8 a.m., eating the remains of a dead one. Robber crabs are, of course, primarily nocturnal , and about 10 were seen out in the open soon after nightfall, during search lasting half an hour. During the day, they may sometimes be seen sheltering in dark recesses between Pandanus roots, between the buttresses of large trees or in rock crevices. The young appear to carry gastropod shells like conventional hermit crabs. The robber crab's cannibalistic nature was observed when an adult and a young one were kept confined overnight in a box for photography the following morning, before which all that remained of the young one were a few claws, even its borrowed gastropod shell having been crushed into small pieces by the chelae of the larger crab.

As I slept on the ground one night, an adult robber crab came within a foot of my head but displayed no aggressive behaviour. Another individual, on being picked up from the ground, vocalized, the sound being rather like a grunt. Another robber crab was found dead on sand at the base of the cliffy northeastern corner of the island.

Monitor lizards :

Alcock, who visited South Sentinel Island in April 1889 wrote that "huge water monitors (Varanus salvator) --- seek their prey upon the reefs and bask upon the burning beach". During the present survey, large monitors of this species - some over 2 metres in length - were often found on the sandy beaches that bordered the vegetation. Most were gluttoned on green turtle eggs which they habitually excavate. On a favoured 100 metre stretch on the 1½ km long beach on the island's northern side, four monitors, each 1½ to 2½ metres in length were seen at about 6-30 a.m. on 3rd April 95. Two of them were intent on digging up turtle eggs; the other two had their bellies full. Elsewhere on the island, very large individual was seen at noon under Pandanus vegetation bordering a beach. However, it appears easiest to observe monitors in the hours following daybreak .

All the water monitors encountered on South Sentinel Island showed remarkably little desire to dash away from humans at sight, in most other places in the Andamans. It was frequently possible to stalk, crouching a bit, to within touching distance of monitors, and in one instance I was lashed on my hand by a tail as I attempted a photograph. A dead individual, its tail dismembered, lay on a beach just above the high tide line.

As was mentioned earlier, a monitor lizard's track was observed on the northwestern of the Sister islands. It remains unclear as to how a monitor could survive on such a small island, even allowing for the presence there of a nesting colony, and eggs, of the black-naped tern.

Black naped terns :

Two nesting colonies of this bird were found during the turtle survey - one on the northwestern of the Sister islands (as mentioned above), the other on an unvegetated reef distant about 500 metres from the southeastern shore of South Brother Island.

In January 1984, an exposed, 100 metre-long sandspit had connected the Sister Islands, ^{on 3 April 95} but this spit was found to be submerged, though of wadable depth at low tide. Nesting by sea turtles occurs almost exclusively on the larger southeastern Sister.

^{On 3 April 95,} the tern colony on the northwestern island consisted of an estimated 150 adults which wheeled noisily overhead. About 100 nests, each spaced about half a metre apart, were counted on the sand just above the level of high tide. Each nest consisted of a slight hollow in the sand on which about 5 or 6 pieces of broken coral rubble - usually staghorn coral - had been placed. On the day of our visit, about half of the nests had eggs, numbering either one or two. The eggs existed despite the presence on the island of at least one specimen of monitor lizard. It was clear that the birds' nesting season had commenced here in the last week of March 1995 (the first two months of 1995 had been exceptionally wet).

On the reef near South Brother Island the nesting colony numbered about 80 birds. One of the 6 nests present on 2 April 95 had an egg in it. The reef is practically awash and there remains very little nesting habitat above high tide level.

A colony of Black naped terns also nests on a reef about 1 km northeast of the Turtle Islands (which lie near Smith Island North Andaman) . A few nests contained eggs on 13 April 1993; humans often collect and consume eggs from this reef.

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