OBSERVATIONS ON THE LOSS OF TAGS BY SEA TURTLES

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The Trinidad Field Naturalists' Club began their Turtle Tagging Programme in 1970, using monel-metal tags from the U.S. National Band and Tag Company, kindly supplied by the University of Florida at Gainsville. In 1970, and in the previous year, some turtles were seen with small, round holes in the trailing edge of one of their fore flippers. It was assumed that these holes were left after tags had fallen out and that the turtles concerned must have migrated to Trinidad from some other country where tagging had been carried out prior to 1970. The further observation that the edges of these holes had well healed scars confirmed that the tags had been applied before the commencement of the Trinidad programme.

The occurrence of these holes was reported in the previous issue of the Club's journal (Bacon & Maliphant, 1971) and a request was made through the International Turtle and Tortoise Society (Bacon, 1971) for information on records of similar flipper holes from turtle biologists elsewhere. This latter article also raised the question of the effectiveness of the tags and whether their loss by the turtle could be due to corrosion of the metal. Several replies were received from different parts of the world and some of the more interesting comments contained in these letters form the basis of this report.

During the 1971 and 1972 nesting seasons further records of tagless turtles were obtained. Some tag returns were also recorded during the same period, which provided the opportunity to examine the tags for possible corrosion. These recent records are discussed below.

Information provided by the following persons is gratefully acknowledged. Mr. R. Hill, Lands-Bosbeheer, Surinam; Dr. R. Kaufmann, Instituto Colombo-Aleman, Colombia; Dr. N. Mrosovsky, University of Toronto, Canada; Mr. T. Yow Pong, University of Malaya, Malaysia.

Observations :—

a. Colombia.

A report was received that several leatherback turtles, **Dermochelys coriacea,** were seen with flipper holes on the beaches

between the Don Diego and Buritaca Rivers, near Santa Marta. No figures were given.

b. **French Guiana.**

Dr. Mrosovsky sent an account of a leatherback tag that was thickly overgrown with a "sea weed with a shortish, rather uniformly rounded stem" which was recovered only two weeks after application. It was not known if the weed growth had effected the metal of the tag.

c. **Central Trengganu, Malaysia.**

A trial turtle tagging programme was conducted on this important leatherback nesting beach in Malaya. The turtles were tagged with both monel and plastic tags : the left flipper with the former and the right flipper with the latter. One hundred and thirteen leatherbacks were tagged and out of "the 68 recorded renesting turtles there were no losses of the plastic tags but several losses of monels". Subsequently more than 3000 turtles have been tagged on the right fore flipper using plastic tags only.

d. **Surinam.**

1. A few flipper holes had been noticed, but no records kept of whether these were on the left or right fore flippers.

2. An occasional leatherback was seen which had lost the tag which was applied that season, but in all cases the wound was fresh and in the form of a notch.

3. Records show that 34 out of 1350 tag returns were corroded and the tags hanging off when the turtle emerged to nest. This confirms that tags can and do fall off in the sea.

4. On several occasions a heavy callous growth was noticed around the tag wound in leatherbacks.

5. Pitting, discolouration and the growth of encrusting organisms occurred on some tags, suggesting that the tag metal varies in its resistence to corrosion in different tag series.

6. On occasions the tags did not seal properly because they were out of line.

Mr. Russ Hill suggested that corrosion of the tags may result from some interaction between the turtle flesh and the tag metal, particularly in the leatherback.

e. **Further observations from Trinidad.**

Flipper holes were recorded in some leatherback turtles on Trinidad's north and east coasts during 1971 and 1972. These are listed in Table 1, together with previously published records for 1970. The majority of the holes were in the left fore flipper, the side generally preferred for tagging by turtle biologists.

Table 1. Leatherback turtle flipper holes, Trinidad 1970—72.

Year	No. turtles seen during season	No. holes on fore flipper	
		Left	Right
1970	19	2	1
1971	26	5	2
1972	53	6	1
Totals	98	13	4

In these two nesting seasons there were reports of six tag returns at intervals of 2, 8, 9, 22, 28 and 30 days respectively. In all cases the tags were only lightly corroded and were without growth of encrusting organisms. A female leatherback, Number T. 14, tagged on Matura Beach on 24.5.70 was found nesting on the same beach on 5.5.72, i.e. two years later. The tag was in good condition, except for slight green coloration, and the inscriptions were clear. There was no enlargement or callous growth around the tag wound.

A ridley turtle, **Lepidochelys olivacea,** tagged on Eilanti Beach, Surinam, in July 1971 was killed at the St. David Fishing Co-operative on 26.11.71. The tag contained eight small barnacles on the inner surface. These have been assigned provisionally to **Balanus tintinabulum antillensis,** as accurate identification was difficult with juvenile specimens. Apart from this the tag was in good condition.

During the three nesting seasons, 1970 to 1972, six female leatherbacks were recorded with similar small round holes in the hind flipper. These were almost certainly not tag wounds. Dr. Mrosovsky's correspondence stated that he had seen holes on the fore flippers of turtles at Bigisanti, Surinam, and Organabo, French Guiana, that did not seem to be placed in a position on the flipper suitable for tagging.

Discussion.

It appears from the observations made in Trinidad and elsewhere that a certain number of monel turtle tags do fall off in the sea. The records suggest that this is particularly common with the leatherback. The loss of tags is probably due to corrosion in some cases, but the possibility exists that many tags come off because they were incorrectly applied.

On Matura Beach turtles have been tagged while crawling down the beach towards the sea and sometimes, when they are moving like this, the tags do not seal properly. This may occur particularly if the tag itself is out of line or becomes twisted if the animal reacts violently to being tagged.

The loss of tags could probably be reduced if turtles were tagged only during oviposition. At this time they are relatively immobile and there is adequate time to apply the tag, confirm that it is correctly sealed and, if not, to remove it and apply a further one. Further studies are required, however, on the corrosion of the monel metal tags to assess their survival time in sea water.

The presence of holes on the hind flippers of some leatherbacks which did not result from tagging, and of similar holes on the fore flippers, indicates that flipper holes may not be explained entirely by tag losses due to corrosion of incorrect application. More detailed analysis of all the injuries seen on sea turtles' flippers, and other parts of their bodies, would clarify this.

References

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