



**A brief report on the monitoring of marine turtles
on the Sao Sebastiao peninsula, Mozambique,
during November 2010 to February 2011.**

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**A loggerhead turtle (*Caretta caretta*) emerging at night on the beach on the east shore of the
Sao Sebastiao peninsula in December 2010**

Introduction

All species of marine turtles are now considered to be globally endangered or critically endangered. Throughout the world populations are generally in marked decline with only a few exceptions. The massive tsunami a few years ago reportedly completely destroyed two of the most critical breeding sites for leatherback turtles and it is thought that their population has declined by over ninety percent in the last decade.

Most of the important remaining marine turtle breeding areas are on small isolated islands but one of the mainland areas where turtles used to breed in large numbers was on the coast of Mozambique.

Sadly, in the past, the Mozambican coast has been the scene of large scale killing of marine turtles with several thousand estimated to have been killed annually in recent years. The killing appears to be declining in some areas but still takes place (Photo 1). Much of the killing is attributed to offshore long line fishing boats but shore fisher are still a source of high turtle mortality.



Photograph 1. A leatherback turtle killed on the Mozambican coast in 2009. In this instance the perpetrators were found and dealt with by the Mozambican Authorities at Ponta d'oro.

Up to five species of marine turtle are reported to have bred on the shores of Mozambique (Louro et al, 2006). In the past, however, information was scanty and often colloquial and sometimes even misleading. In recent years more attention has been paid to the situation and slowly better information and more accurate data have been obtained (Pereira et al, 2009, & Videira et al, 2010). Efforts have been made to collate and organize the available historical data and combine this with current information (Pereira et al, 2009, & Videra et al 2010) and this is leading to a much better understanding of the status of marine turtles in Mozambique.

Various turtle monitoring schemes have been carried out in several localities in Mozambique in the past but methods of data collection and levels of accuracy and detail were dissimilar and incompatible. This resulted in a confused situation where different monitoring schemes counted the various aspects of turtle breeding in different ways making simple collation of data difficult.

In November 2010 a turtle Workshop was held in Maputo (Pereira & Videira, 2010) to address this situation and attempt to standardize methods of data collection. This resulted in a more standard

approach to turtle monitoring that makes the compilation of a National Mozambican Turtle Status Report more easy and meaningful.

This brief report serves to present the basic information collected in the Sao Sebastiao area by the local Sanctuary management team during the 2010/2011 season.

Methods

The Sao Sebastiao peninsula is situated about twenty kilometers directly south of the southernmost island of the Bazaruto archipelago. The region was proclaimed as conservation and protected area under Authorisation n° 4/2000 by the Government of Mozambique. The reserve area, called Santuario Bravio de Vilanculos Lda, or commonly known as the Vilanculos Coastal Wildlife Sanctuary, has a management structure that actively carries out field management of land and marine areas.

Basic, but erratic, turtle monitoring and protection has been carried out for several years but data has been minimal and supervision of the monitoring has been challenging. In the 2010/2011 season attempts were made to improve both the protection and monitoring. Most turtle breeding is thought to take place on the beaches of the eastern shore of the peninsula and the area monitored last season stretched from "Lighthouse" northwards for about 15 kilometres up the shore to the end of the sand spit (Map 1).

Four game scouts, who were local people, were employed and trained in turtle recognition and the basics of measuring and then deployed to protect and monitor the nesting turtles from November 2010 to the end of February 2011.

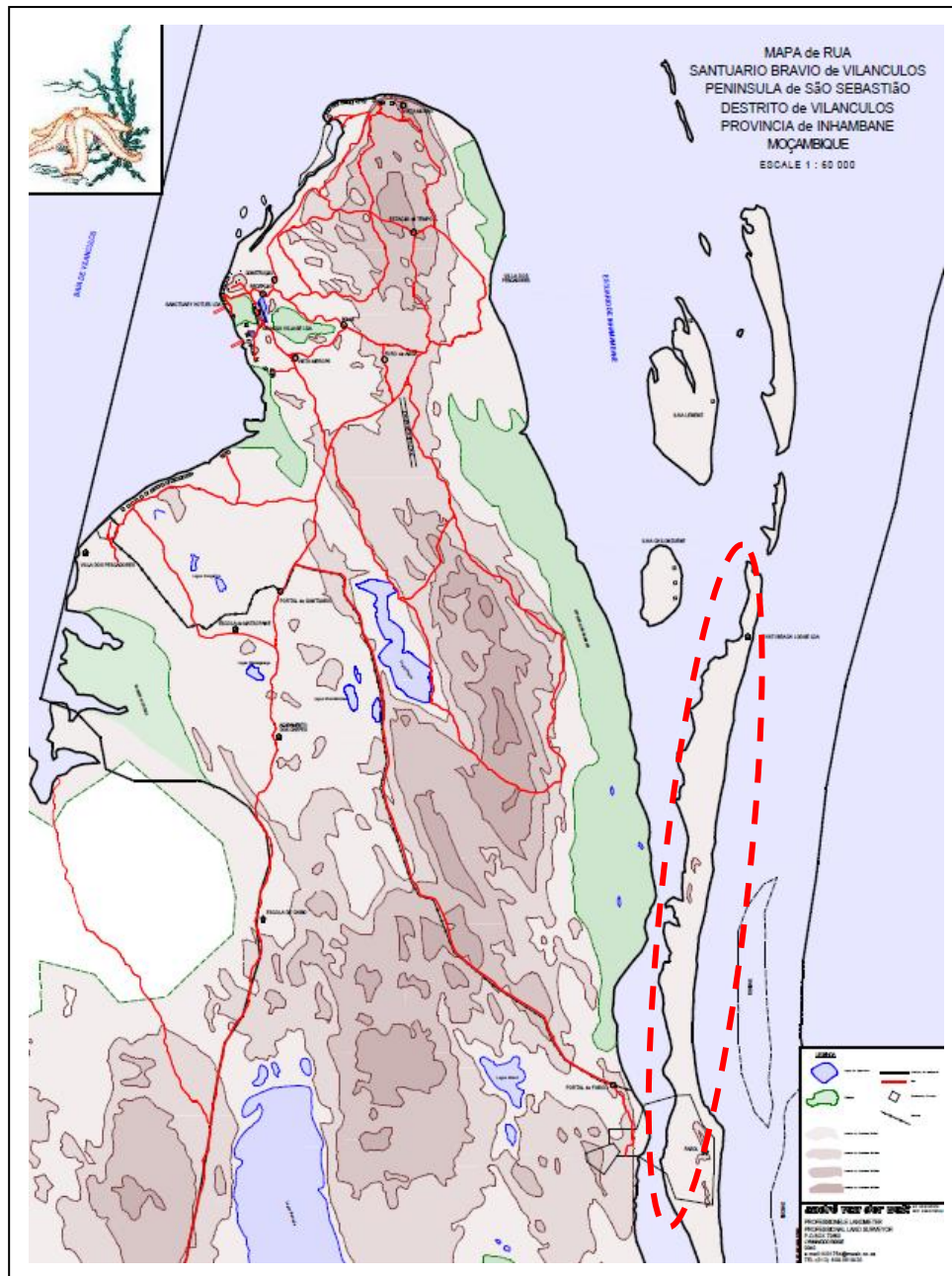
The turtle monitors were issued with a turtle identification key (Annexure A), data sheets, measuring tapes and simple digital cameras. They were to walk their allocated areas nightly, during the period of monitoring, and identify and note all turtles encountered and record all turtle tracks seen. They were not required to tag turtles.

Various problems arose with supervision, as the monitoring took place in an area only approachable by boat, and some of the equipment was found to be unsuitable. The digital cameras both broke before any useful photographs could be taken. Despite the challenges some useful results were obtained.

Results.

A total of nine turtles were physically handled by the monitoring team during the survey period (Table 1). Other tracks were seen by the monitors but it was not possible to obtain accurate counts of how many and of which species they could be. The numbers of animals handled was considered to be accurate but the numbers of tracks appeared more problematic. As it was thought likely that the ratio of animals handled to tracks seen should be comparable to that of similar programmes elsewhere, this ratio was obtained from the South African turtle monitoring programme. This monitoring works on similar lines, with monitors walking nightly along roughly the same length of shore. In this programme, this year, just over seven turtle tracks were recorded for each animal handled. An estimate of tracks seen in the Sao Sebastiao programme was thus generated by multiplying the handled animals by seven (Table 1).

It seems likely that turtles emerged over sixty times to nest in the study area during monitoring this past season. Bearing in mind that the monitors did not cover the whole nesting area or season it seems probable that over one hundred turtle nesting attempts took place in this area of Sanctuary.



Map 1. The Sao Sebastiao peninsula showing, as an elliptical red area, the area patrolled during marine turtle monitoring during the 2010.2011 season.

The sizes of animals encountered fell into three fairly distinct groups. The largest had a width of well over one metre and only a leatherback turtle (*Dermochelys coriacea*) could have such a measurement. From the Monitors' description of the animal it also sounds as if it was this species. The bulk of the animals measured fell into a middle category that corresponds to the dimensions of loggerhead turtles (*Caretta caretta*), and there are photographs of several of these animals (Photograph 2), while a third group of animals is smaller. Olive ridley turtles (*Lepidochelys olivacea*) are smaller than loggerheads and there have previously been unconfirmed reports of this species nesting on these beaches. It is unfortunate that the cameras both broke before they could be used resulting in more unconfirmed reports that olive ridley turtles are nesting on the beaches of Sao Sebastiao.

South of the monitored area three turtle nests were reported by monitors as having been dug up by humans collecting eggs. One loggerhead carapace was found that looked as if it had been killed in

recent years (Photograph 3.) but no turtles were reported to have been killed and no nests robbed in the study area during the monitoring period (Table1).

| Species | Turtles handled | Est. of tracks seen | Nests dug up | Turtles killed |
|------------------------------------------------|-----------------|---------------------|--------------|----------------|
| Loggerhead (<i>Caretta caretta</i>) | 5 | 35 | ? | 0 |
| Leatherback (<i>Dermochelys coriacea</i>) | 1 | 7 | ? | 0 |
| Olive ridley* (<i>Lepidochelys olivacea</i>) | 3 | 21 | ? | 0 |
| Unknown | 0 | 0 | ? | 0 |
| Total | 9 | 63 | 3 | 0 |

Table 1. Available information on the numbers of turtles handled, estimates of the number of tracks seen, nests dug up and turtles killed during the 2010/2011 Sao Sebastiao turtle monitoring programme.

(* These turtles appeared to be significantly smaller than those identified as loggerhead turtles by the monitors. The presence of olive ridley turtles nesting on these beaches still needs to be confirmed.)



Photograph 2. Sao Sebastiao turtle monitors recording a loggerhead turtle in December 2011.



Photograph 3. A carapace of a loggerhead turtle that had been killed fairly recently but before this monitoring period.

Discussion

Although the monitoring of turtles along this shore fell short of its goals for this year, there were several important achievements. It has been confirmed that marine turtles nest on these shores in fair numbers. The presence of monitors along the study area during peak nesting time appears to have prevented the killing of turtles and reduced the number of nests being dug up.

If the identifications prove to be correct then it means that there is now an area, outside the far south of Mozambique, where at least two and possibly three species of marine turtle are monitored and are given a fair degree of protection.

If the number estimates are correct and confirmed next season then it would mean that this is not just an area where turtles occasionally try and lay but a possible relic or even core area for turtle breeding in the region.

Turtles nesting in this area is seen by the managers of Sao Sebastiao as an important aspect of conservation and their management of the region. The core area monitored is fairly remote with few local residents nearby and little disturbance. It is probable that in the past the area was severely impacted by people killing turtles and digging up nests. Almost every old homestead has pieces of turtle carapace in their middens. Changed conditions and improved management of the area, however, could well result in a fairly extensive area where two and possibly three or even four species of marine turtle would be relatively safe to nest and where nests would be less likely to be destroyed or the eggs taken.

Future monitoring

The managers of The Sanctuary propose to upgrade turtle monitoring this coming season and some lessons have been learned and improvements will be made. More attention will be given to training in measuring and cellphones, with the capacity to take photographs, will be issued to Monitors. Each animal seen will be photographed, for positive identification, and all tracks will be counted, measured and localities recorded.

Concluding remarks

It appears that the shores on the east of The Sanctuary are suitable for several marine turtle species to breed and that at least a few individuals still do so each year. Numbers breeding have probably declined markedly in the last few decades due to disturbance, killings and nest robbing by man. If Sanctuary management can remove or at least reduce some of these factors it seems likely that numbers breeding might increase. This has happened in South Africa although it has proved to be a very long, but successful, process.

The present monitoring suggests that several dozen turtle nests hatched successfully (Photo 4) this season and, if present plans can be implemented, the future of marine turtles on Sanctuary looks bright.



Photograph 4. Freshly hatched Loggerhead turtles heading for the ocean.

At present successful turtle breeding in Mozambique has mostly been restricted to the far south and to loggerhead and leatherback turtles. If Sanctuary can provide protection it could result in a more central Mozambican turtle breeding haven and it also appears likely that at least one other species of turtle might find a relatively safe breeding area on the mainland of Africa.

The identification, protection and monitoring of a substantial new marine turtle breeding area on the mainland of Africa will be a significant achievement in worldwide marine turtle conservation. It will also be a valuable conservation asset to The Sanctuary and contribute towards the conservation of these charismatic and endangered species.

The monitoring and protection carried out by The Sanctuary will be closely integrated with the overall Mozambican efforts to conserve and protect these magnificent and threatened creatures.

The Sanctuary's turtle information from the 2010/11 season has been incorporated in the annual Marine Turtle report of Mozambique (report attached).

References

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ANNEXURE A: Turtle identification key

