Progress Report

Establishing marine turtle nesting activity for

- **Serrurier Island Nature Reserve;**
- **Locker Island Nature Reserves; and**
- **Locker Point to the Ashburton River,**

North-West Western Australia

May 2007

T:\422-Operations (District)\Shared Data\16 ISLANDS & EXM GULF\1601 Serruier\2006-07\Project Report_Lewsi_LisetteMay07.doc

Introduction

All marine turtles known from Western Australian waters are listed as threatened fauna under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*, and as "*fauna that is rare, or is likely to become extinct*" under the State's *Wildlife Conservation Act 1950*.

An important strategy for marine turtle conservation is protection of nesting and foraging habitats. In Western Australia (WA) this can be achieved through the reservation of important terrestrial and marine areas.

Through the efforts of the Ningaloo Turtle Program, a previously unknown highly significant mainland loggerhead turtle rookery was identified for the Ningaloo coast, Western Australia. However, islands to the north-east of North-West Cape and the coast to the south-west of Onslow towards Exmouth Gulf have never been formally surveyed for turtle nesting activity (except for the Muiron Islands Nature Reserve).

The Ningaloo Turtle Program (NTP) was established with the objective, amongst others, to identify key breeding and nesting beaches in the Ningaloo region. It was recognised by the collaborators of the NTP, namely, Cape Conservation Group (CCG), Department of Environment and Conservation (DEC) and Worldwide Fund for Nature (WWF) that the area between Serrurier Island and the mainland adjacent to Urala Station (Figure 1) required a pilot survey for marine turtle nesting activity to determine the relative significance of this area for nesting species of marine turtles. Funding support from Wildlife Link (the Lewis and Lisette Foundation) made this possible in January 2007.

Aims and objectives

The primary aim of the field trip was to establish the significance of Serrurier Island, Locker Island and the coast adjacent to Urala Station for marine turtle nesting. Given the opportunity of having a conservation team at these remote locations, the objectives of the trip were broadened to include primary and secondary objectives as follows:

1. to quantify the level of turtle nesting activity on Serrurier Island Nature Reserve and Locker Island Nature Reserve; and
2. to establish the relative significance of the various beaches for turtle nesting at the reserves.

Secondary objectives were:

3. to conduct a litter survey at the nature reserves;
4. to determine the level of impact from illegal visitation to these reserves in terms of vegetation loss, feral animal introduction, litter and other structures and fires;
5. to conduct a bird survey; and
6. to determine the abundance of the short-tailed mouse, *Leggadina lakedownensis*, (endemic to Thevenard Island).

Methodology

Study Location

The focal point of this field trip was Serrurier Island Nature Reserve (position S 21°37'07", E 114°41'18"). Serrurier Island lies 42 km west of Onslow and 19 km north of Locker Point, off the Pilbara coast in the north-west of Western Australia (Figure 1). In 1801, the island was given the name "Serrurier" by the French Expedition of 1801-03 under the command of Post-Captain Nicolas Baudin after Count Serrurier, Marshal of France under Napoleon.

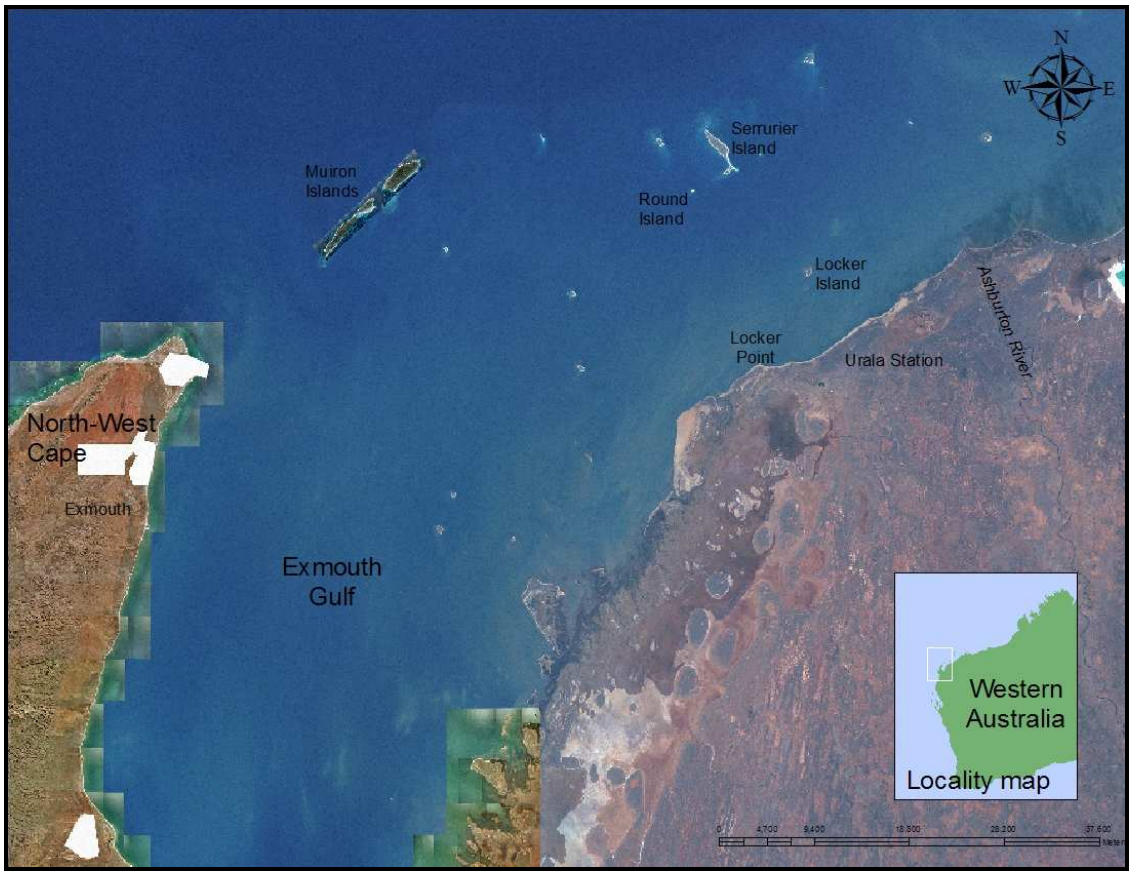

Figure 1: Map showing the location of the study sites at North-West Western Australia

Marine turtle surveys

This component was conducted in two stages: track number estimates from aerial flights followed by ground-truthing using beach track and nest surveys (Morris and Mau, 2004). Aerial surveys of tracks on the beach at the peak of the nesting season can be used to quickly estimate seasonal nesting abundance by counting the total number of turtle tracks left on a beach by turtles attempting to nest from the night before.

The field trip applied the *Ningaloo Community Turtle Monitoring Method* for ground-truthing which uses a standard "morning after" beach survey technique (Eckert *et al*, 1999).

Results

An aerial survey of the beach between Locker Point and the mouth of the Ashburton River was conducted on 5 January 2007 (Figure 1).

The GPS overlay usually used for this method malfunctioned and instead a GPS unit display was panned to with the video camera when new turtle tracks were seen along the coast. However, sufficient information was collected to determine turtle track positions along the Urala Station coast (Figure 2) and Locker Island (Figure 3).

In total, 11 fresh turtle tracks (from the previous night) were identified, with four tracks just south of Entrance point. Another seven tracks were found on the eastern side of Locker Island.

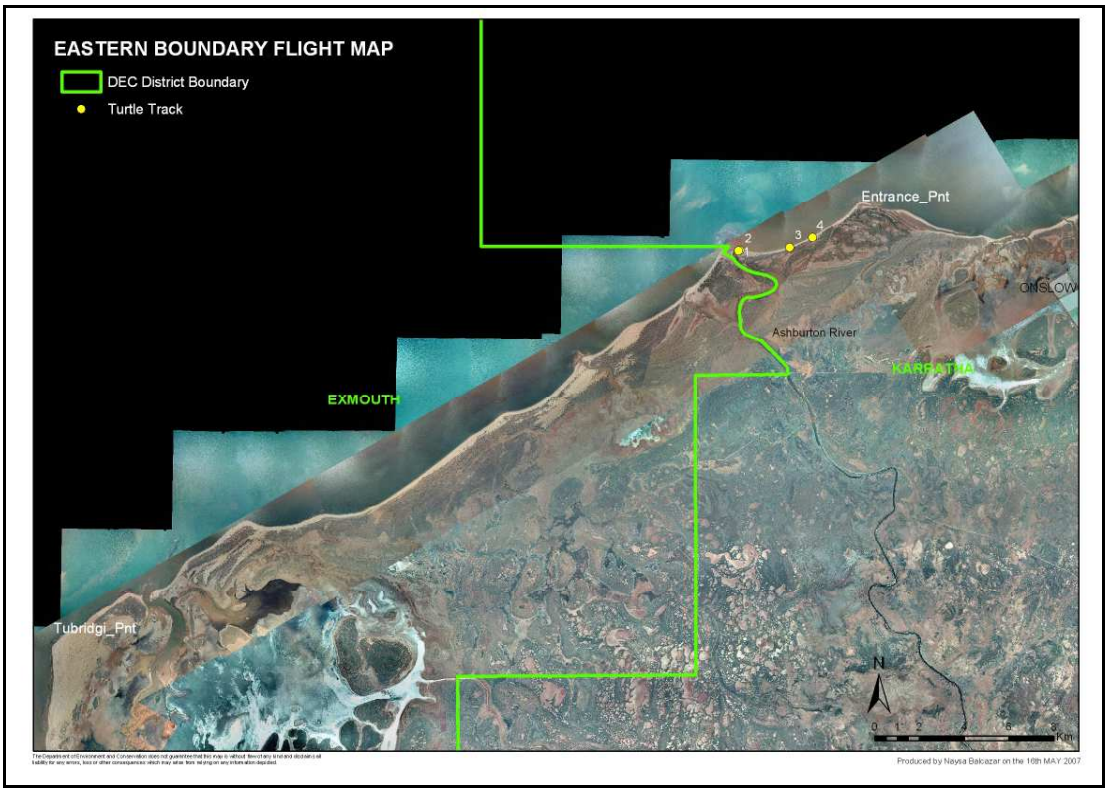

Figure 2: Map showing approximate distribution and abundance of turtle tracks along the North-west coast between Locker Point and the mouth of the Ashburton River (based on one aerial survey, 5 January 2007)

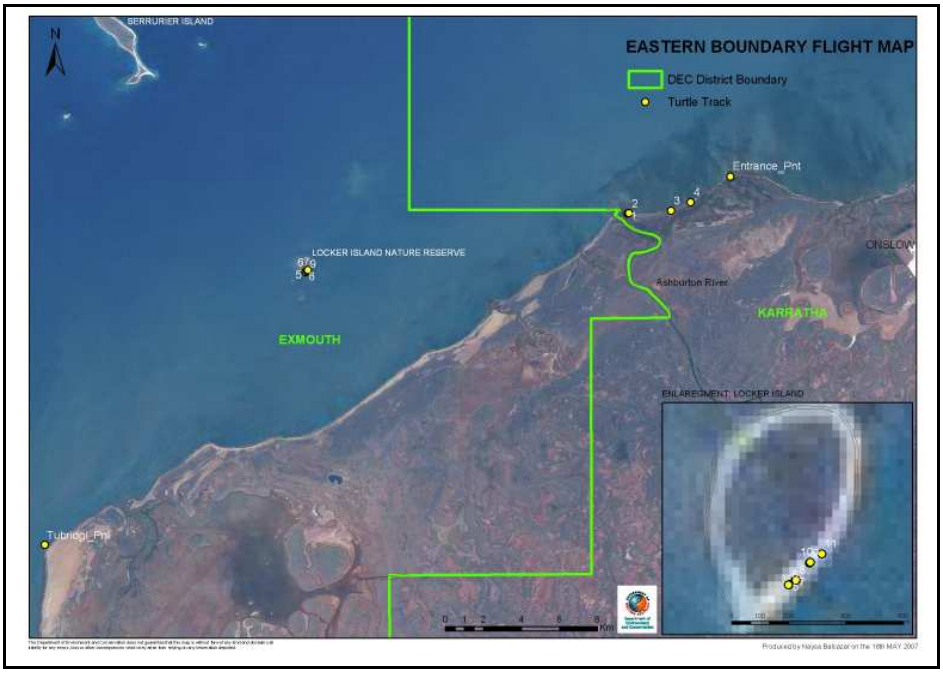

Figure 3: Map showing approximate distribution and abundance of turtle tracks on Locker Island

A vessel-based field trip to Serrurier Island and Locker Islands Nature Reserves was conducted from the 9 to 13 January 2007. After spending the first afternoon removing old turtle tracks, the survey team successfully surveyed the whole Serrurier Island coast for four mornings recording new nesting activity. Figure 4 below shows the survey results in relation to unsuccessful and unsuccessful nesting attempts.

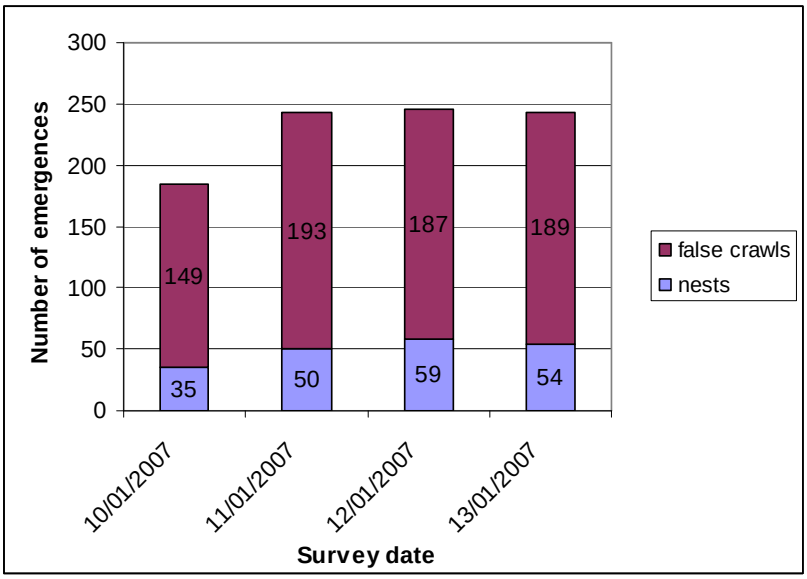

Figure 4: Graph showing the total number of green turtle emergences (for nests and false crawls) over four nights on Serrurier Island Nature Reserve

The actual positions of successful nesting attempts were mapped as shown in Figure 5.

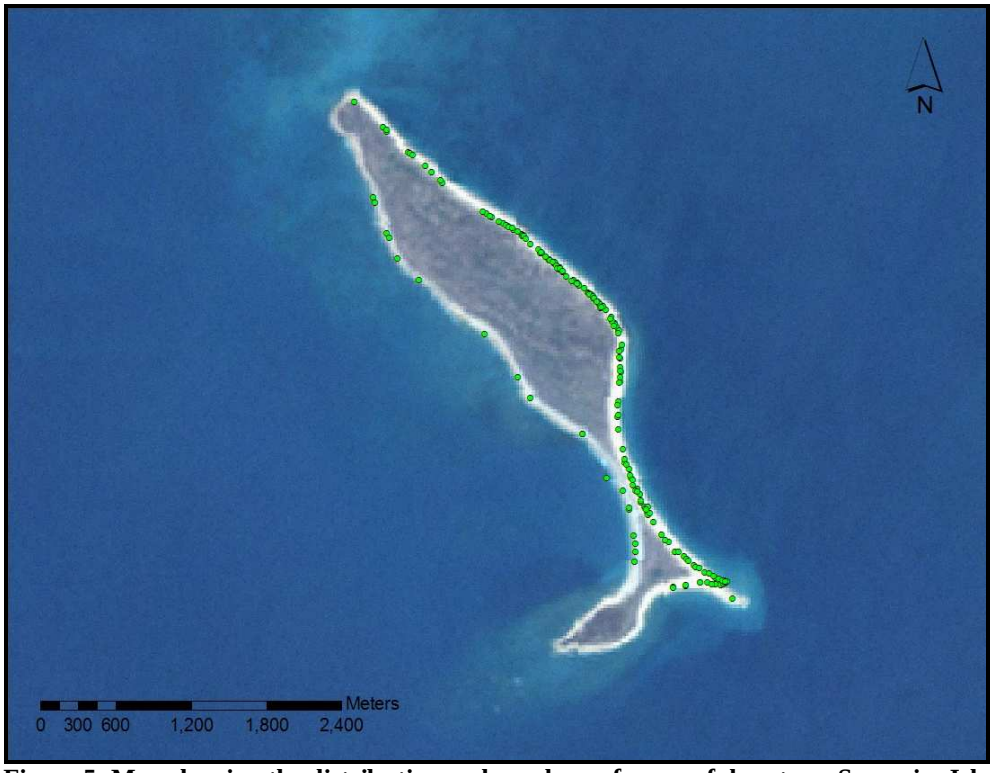

Figure 5: Map showing the distribution and numbers of successful nests on Serrurier Island based on four survey mornings from 10-13 January 2007

Due to strong winds during the survey period, the team were unable to access the main coast for reconnaissance surveys. A one off survey off Locker Island was conducted. Table 1 shows the old nest and new nests found for each species as well as the number of false crawls recorded based on a one off ground survey.

Table 1: Nest and track survey results fro Locker Island for 11/01/07

Nests	GPS Position				
Species Type	Latitude	Longitude	New(N) / Old (O)	Pos. of Nest	Nest Damaged
Flatback	-21.71936	114.76661	N	E	N
Loggerhead	-21.7192	114.7662	N	H	N
Unknown	-21.7188	114.76599	O	E	N
Loggerhead	-21.71825	114.76578	O	E	N
Hawksbill	-21.71794	114.76564	O	E	N
Unknown	-21.71672	114.76934	O	H	N
Green	-21.71657	114.76924	O	E	N

False Crawls

Species	Total
Green	15
Loggerhead	4
Flatback	12

The distribution of recorded nests on Locker Island is shown in Figure 6.

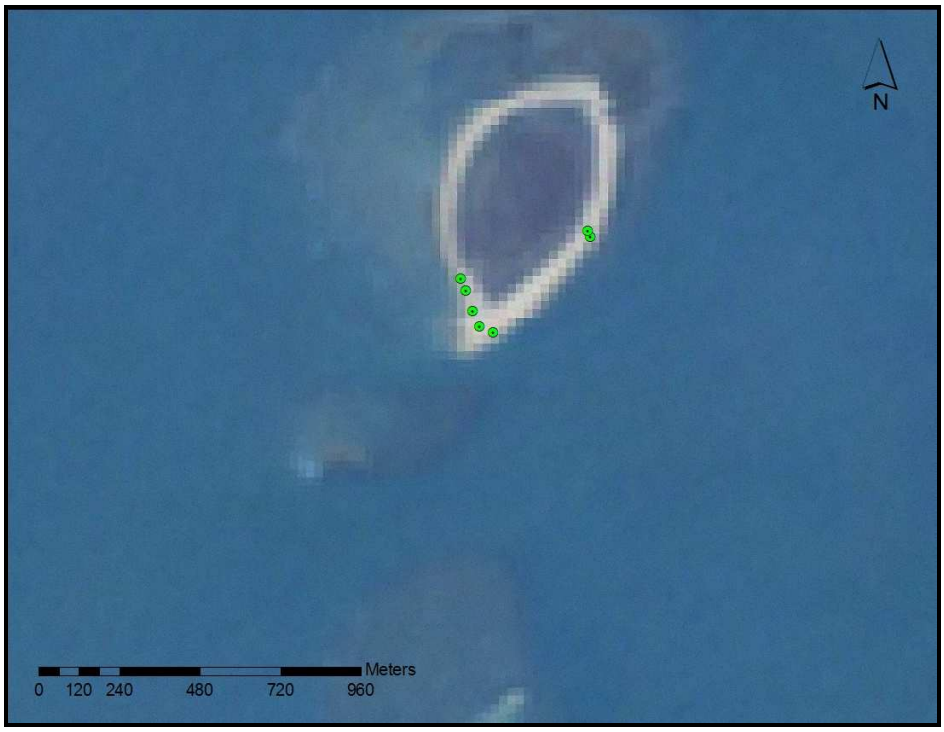

Figure 6: Distribution of turtle nests found on Locker Island

Two dead green turtles were found during the first day of the surveys, one male found at the high tide mark and one female which appeared to have died during the nesting process (fresh eggs found around cloaca). One female green turtle was rescued after getting stuck on her back when falling off a dune during a nesting attempt (Figure 7). Once turned over, she quickly crawled back into the ocean and was not seen again.

Figure 7: Female green turtle rescued after getting trapped on her back

Summary
A reconnaissance surveys conducted at North-West Western Australia for Serrurier Island, Locker Island and the Urala Station coast were able to identify for the first time the indicative distribution of nesting activity in this area as well as providing quantitative data of nesting activity for each species in this area. This data is invaluable to determine critical habitats of marine turtles of Western Australia, estimate population sizes as well as providing data required for conservation planning.

It was apparent that Serrurier Island is a significant green turtle rookery with some minor hawksbill and loggerhead activity on the west coast of the island. Locker Island appeared to be frequented by green, loggerhead, hawksbill and flatback turtles. Turtle track characteristics suggest that the south-east section of Locker Island is used by flatback turtles for nesting.

This collaborative program allowed community volunteers to assist government conservationists in collecting this data. The collaboration allowed local volunteers to gain a greater appreciation of the ecological significance of this area while allowing for a cost effective data gathering process.

A full field trip report is being prepared which will reflect the outcomes of all objectives set for this survey. The report will be provided to funding providers and collaborators once completed.

Acknowledgements
This trip would have not been possible without the generous funding provided by the Lewis and Lisette Foundation and the efforts of Susie Bedford, Nicki Herriot, Brooke Halkyard, Brad Daw and Kim Onton.

Citation
This report may be cited as:

Mau, R. and Balcazar, N. (2007). *Progress Report: Establishing turtle nesting activity for Serrurier Island Nature Reserve, Locker Island Nature Reserve and Locker Point to the Ashburton River, North Western Australia*. Western Australian Department of Environment and Conservation, Exmouth District.