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HAWKSBILL TURTLE FIELD RESEARCH

MILMAN ISLAND NESTING SEASON 2016-2017



Bring Back the Bills

The recommencement of turtle nest monitoring at Milman Island (from 15 January - 15 February) was undertaken by the Apudthama Indigenous Rangers, the Department of Environment and Heritage Protection (DEHP) and a large collaboration of partners this year. An 'early season' beach clean-up trip was also completed between 14-18 November 2016, and the main nesting biology survey undertaken between 10 January - 16 February 2017 to monitor the peak nesting period.

Milman Island lies approximately 50 km south of the tip of Cape York and 20 km offshore, making it a very remote sand cay situated in the the far northern section of the Great Barrier Reef (GBR) Marine Park. The island is a national park and the waters surrounding it are zoned as a 'Preservation Marine Park', which provides it with the highest level of conservation protection within the marine park and is therefore insulated from many anthropogenic impacts.

When investigated in the 1990s, Milman Island supported not only the highest density of hawksbill turtles nesting in Queensland, but was the most significant nesting site in the Western Pacific, for one of the world's largest hawksbill stocks in the world (Limpus and Miller 2008; Dobbs et al., 1995; Limpus 2009).

But this NE Australian hawksbill stock continues to decline with an expected >90% loss predicted by 2020 (Limpus, 2008). Although more recent unpublished data suggests this decline may



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have slowed over recent years, and while considered critically endangered outside of Australian waters, hawksbill turtles in Queensland are soon to be uplisted from Vulnerable to Endangered under state legislation (in 2017).

Unfortunately, uplisting doesn't mean hawksbill turtles will recover, it means that the status quo is not good enough and more direct conservation action and protection is critically needed.

Although some hawksbill turtles are protected while nesting and feeding in the waters of the GBR, many others nest, migrate and feed in other parts of the state (Torres Strait and western Cape York) and in neighbouring countries (Papua New Guinea and Solomon Islands), which remain unprotected.

Hawksbill populations are threatened by unsustainable legal and illegal take, targeted in fisheries and caught as bycatch, entangled in ghost nets, and threatened by the impacts of climate change and loss of nesting and feeding habitat. Not only are they currently an important part of the general marine ecosystem, being algivorous and feeding on encrusting algal turfs, they may play a major role in future Reef recovery. There is therefore an urgent need to reverse the NE Australian hawksbill turtle stock decline – and *bring back the 'bills*.

Reducing unnatural mortality and increasing nesting success is vital to help restore hawksbill populations and should be a driver for any future action.

The purpose of the Milman Island field trips is to collect information on nesting populations and deliver direct management action that will support the recovery of one of the world's largest hawksbill populations, and to:

- Monitor nesting hawksbill turtles to document population trends and future effectiveness of management actions.
- Attach and deploy >10 satellite transmitters to help determine previously unknown migration paths and foraging grounds.
- Remove logs blocking beach access to help increase available nesting habitat and nesting success.



The 2016-2017 Nesting Season Field Trips:

The Log Removal Project: 14 - 18 November 2016

The Apudthama Indigenous Rangers, Department of Environment and Heritage Protection and WWF-Australia (WWF) travelled to Milman Island in November 2016, prior to the peak nesting season to remove logs blocking turtle access to the beach.

These logs were classified as 'foreign' (not from the region) or 'sawn' (from logging operations), and 'natural' logs (from the region) and line the high tide mark around the circumference of Milman Island and other nearby islands. So long and prolific, the logs prevent access to large portions of the available nesting beach to hawksbill turtles. During our nesting trip in January 2016, we noticed many turtles traversed the length of a log before returning to the water, using valuable energy reserves and unable to nest. And so was born, the log removal project!

Before the wet season rains had arrived and the heat became so unbearable you can't even think, we worked each morning and afternoon to measure, GPS, photograph, and take timber and termite samples of each log blocking beach access. With two new chainsaws and plenty of additional tungsten wood boss chains as gifts to the rangers, any log over one metre was either cut into smaller sizes and refloated to sea, left in place, rolled further into the vegetation, or carefully incinerated at their current position.

Having worked tirelessly for four days straight, we managed to remove 253 metres of logs that were blocking access to the nesting beach. That's equivalent to having almost 17 buses parked end to end along the beach!

We managed to blunt all four chains and everyone's energy levels but completed $\frac{3}{4}$ of the island's circumference. Thanks to John Charlton's *Straits Runner* charter vessel, and for the financial support of the Apudthama Rangers and WWF, it was a successful trip. With the hope of more funding, we planned to return in January and February 2017 to complete the job.

While on the trip, we also monitored the beach for nesting turtles and to find the perfect hawksbill turtle to attach and deploy a satellite transmitter (funded by DEHP). This satellite transmitter marks the fourth to be deployed on Milman Island – first in January 2010 (by Cape York Sustainable Futures), second and third in January 2016 (by WWF and DEHP). More transmitters are to be deployed in January/February 2017 (by WWF and DEHP - thanks to the support of WWF and Wildlife Computers).

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10 January - 16 February 2017

A large collaboration of partners from government, not-for profits, natural resource management and Indigenous groups made up the research team – working together to deliver the objectives of the trip.

The Apudthama Rangers started the trip setting up camp on day one and the night time turtle nesting monitoring. Since then it's been a steady stream of four teams of trained rangers and researchers rotating during what is considered to be the peak nesting period.

The weather this trip was variable between too hot and humid to move to torrential rains, from perfect early evening full moon tides to 2.00 am wake up calls of no moon and small tides. No matter what the tides, there were teams monitoring the beach at least two hours on either side of high tide.

During week three (28 January - 8 February 2017), we completed the final part of the log removal project. We removed another 192 metres of logs, equivalent to adding 13 more buses parked end to end along the beach! While we now await the results of the timber sample identification, we can rest knowing that a total of 445m of logs have now been removed from the nesting beach, creating greater access. A report of the results will be available in the coming months.

WWF and DEHP also deployed another 10 satellite transmitters, making a total of 14 since 2010. Most of the ladies have laid their last clutch of eggs for the season and are heading back home to feed. It is this migration track and the place they call home that we need to know more about, to find out if it's a haven or where they may be facing multiple threats. Scientists will analyse their movements and publish the results over the next year.

During the last week, the SeaTurtle Foundation and Western Cape Turtle Threat Abatement Alliance (WCTTAA) provided a women's only turtle training session. With rangers from Apudthama and Torres Strait Indigenous groups, the ladies worked tirelessly monitoring the beach and learning everything about track counts, nesting and hatchling emergence success.

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409 TURTLES ATTEMPTED TO NEST

 227 hawksbill

 181 green

 1 flatback

The Science:

Hawksbill (and green) turtles were monitored on Milman Island between 1990-2010. It is the index (or indicator) beach for the NE Australian hawksbill turtle genetic stock. It has been a saturation tagging program since 1990, meaning every turtle that has nested, or attempted to nest, has been recorded during a common period from 15 January – 15 February. The first decade of monitoring indicated the population was in decline by 3-4% annually with a trajectory of >90% loss by 2020 (Fig 1) (Limpus, 2008).

Unfortunately, the final 10 years of monitoring suggests this decline is continuing resulting in the population being recommended for up-listing to an Endangered conservation status.

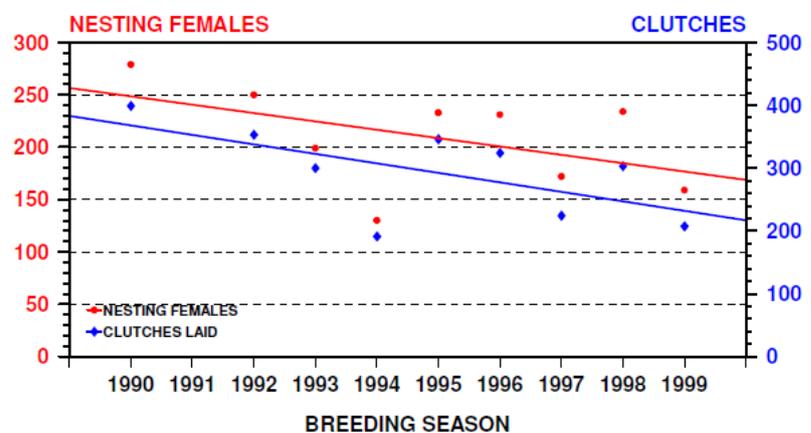


Fig 1. Milman Island index beach census: annual, mid-season, one month (15 January - 15 February) tagging census of nesting females and count of clutches laid. Based on data from Miller et al. (2000)

Hawksbill Turtle Stats (10 January - 16 February 2017):

- 82 tracks were recorded.
- 145 turtles caught, tagged and measured.
 - 40 primary (first time) turtles caught.
 - 105 inter-season recaptures (tagged in a previous season).
 - Of these turtles monitored, 114 laid, 9 didn't lay, 22 are unknown.
 - Smallest was 70.9 cm and largest 88.8 cm.

10 nests were assessed for hatchling emergence with on average ~85% success.

One turtle was found with rope scarring from net entanglement.



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Other complimentary project data were collected, including turtle photo identification, stable isotopes, and genetic samples:

- 147 photos were taken of the left side of turtles' heads to add to the new Turtle Photo ID database.
- 23 genetic and stable isotope samples were taken for stock and foraging ground identification.
- 8 data loggers were removed from 2016 nests to determine nest temperature changes and sex determination of turtle hatchlings.

The monitoring data will be used by DEHP to update the population trend trajectory. The remaining samples will be analysed by other collaborative partners including WWF International, the University of the Sunshine Coast and the National Oceans and Atmospheric Authority. Given their declining trajectory, continuing to monitor hawksbills at Milman Island will be crucial in documenting future population trends and the effectiveness of management actions. Data collected since 2000 should be analysed with urgency.

Expanding migration and foraging ground identification, to not only help determine critical habitat but also their extent of distribution, will be important to understand what threats they are facing and how to manage and mitigate them.

With hatchling success on Milman Island considered average to high, the island is deemed to be functioning as a suitable nesting location. As a turtle expends a lot of energy to nest, a straight path to a suitable nesting location is key. Continuing to remove logs from Milman Island will be imperative so that that optimal nesting habitat is available to increase nesting success.

Highlights from the trip:

- Birdwatching and spotting more than six migratory shorebird species.
- The rain, rain and more rain, but good company under a wet marquee.

Collaborative project partners of the *Bring Back the Bills* project include WWF, Apudthama Rangers, DEHP, Sea Turtle Foundation, Western Cape Turtle Threat Abatement Alliance, and Biosecurity – Department of Agriculture and Water Resources. The field trip was primarily supported by the Apudthama Rangers, with satellite transmitter donations by WWF and Wildlife Computers, and Indigenous women's only training by the Norman Wettenhall Foundation. The field trip would not have been possible without remote transportation from the Apudthama Rangers, NPA Cape York Coast Guard, John Charlton's *Strait Runner* and QPWS's *Reef Ranger*.

The next step is to secure more funding to ensure Milman Island monitoring continues next nesting season (2017-2018) and to purchase more satellite transmitters for deployment in multiple locations where the NE Australian hawksbill turtle nests, breeds and feeds.

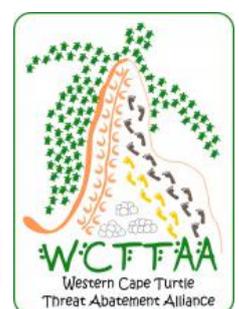
In continuing to unravel the mystery of where hawksbill turtles migrate and feed, and what threats they are facing in the place they call home, I'm signing off – Chris Hof.



WILDLIFE
COMPUTERS



Sea Turtle
FOUNDATION



Why we make a difference

Reaching new audiences

We will create new ways to inspire and motivate a new generation of Australians and truly realise our collective power to make a difference to the world in which we live.

High Impact Initiatives

Over the next 5 years, we will accelerate our on-ground conservation and advocacy work, focusing on new priority areas where we have the greatest impact and influence.

Building a strong network

We will draw strength from WWF's 50 years of rich history, knowledge and experience, harnessing our network of people around the world.

Walking the talk

We will continue to commit to reducing our overall environmental footprint, with an ambitious vision to reduce energy consumption by 30% and emissions from travel by 50% by 2015.

Loyal supporters

WWF's supporters make an invaluable contribution to our conservation work. We couldn't do without their loyalty, generosity and personal involvement. We will expand the ways in which supporters can connect with WWF, giving them a greater choice of programs from which they can choose to protect our planet's future.

Transforming business

Through building influential relationships with business and industry, we will continue to create solutions to address the major threats to our natural environments.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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