



TAGGING TURTLES ON A REMOTE AND RUGGEDLY BEAUTIFUL ISLAND

One of Western Australia's longest-running turtle tagging program is providing insights into the world of threatened loggerhead turtles that visit Dirk Hartog Island each summer to nest.

by Samille Mitchell and Clodagh Guildea





It's just gone midnight as the prehistoric-looking beast emerges from the moon-lit sea. Ever so slowly, it drags its 100-kilogram-plus body up the beach, lumbering through the sand towards the cliffs guarding the beach.

This is one of thousands of female loggerhead turtles (*Caretta caretta*) that congregate at this remote, raw and ruggedly beautiful coastline during the summer nesting season. Each night during peak season, hundreds of the threatened turtles visit the aptly named Turtle Bay on Dirk Hartog Island, or Wirruwana in the Malgana language, in the Shark Bay World Heritage Area.

They likely hatched on this very beach, or close by, more than 30 years ago before venturing into the seas, becoming one of the tiny percentage of hatchlings who survive their first years.

When the females reach sexual maturity, they are somehow instinctively guided to return to the area they were

born to lay eggs of their own at the foot of the cliffs that once greeted the first recorded Europeans to set foot on Australia. So little is known about the 30 years between hatching and returning to their rookery to breed that scientists refer to this time as 'the lost years'.

TURTLE MONITORING

Population studies of marine turtles formally began in the 1980s, with the formation of the Western Australian Marine Turtle Program (WAMTP) led by Dr Bob Prince, who was a CALM wildlife researcher. As part of this program, monitoring of loggerhead turtles began on Dirk Hartog Island in 1994, and the Dirk Hartog Loggerhead Turtle Tagging Program was initiated.

This ongoing population monitoring program involves tagging turtles for capture-mark-recapture studies and has continued most years since it began, making it one of the State's longest-running marine turtle population studies. Tag identification, measurements and observations are entered into the WAMTP database, along with data from multiple other marine turtle monitoring programs across the state.

A DAY IN THE LIFE

Over four weeks each January, teams of about 10 Parks and Wildlife Service staff and volunteers stay a week at a



time on Dirk Hartog Island to help with tagging.

They wait until high tide at night and journey to Turtle Bay where they've divided up a five-kilometre stretch of beach into five sections. Teams of two or three people monitor a section each and begin clambering over rocky outcrops and trudging through the sand on the lookout for tell-tale turtle tracks that can criss-cross the beach like a highway.

Under the light of the moon or using infrared head torches (so as to not disturb the turtles with bright white lights), they follow the tracks up the beach in search of a turtle. If they see a turtle emerge from the sea, they hang back out of sight, allowing the turtle to lumber up the beach to nest.

Often the turtles will begin digging, abandon the site and move on to find just the right place for their eggs. Sometimes they'll declare the beach unsuitable and

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Main Loggerhead turtle (*Caretta caretta*), Dirk Hartog Island.

Inset Loggerhead turtle leaving the beach.
Photos – Samille Mitchell/DBCA

Above Turtle Bay, Dirk Hartog Island.
Photo – David Bettini



“The Dirk Hartog loggerhead population is important for the conservation of regional loggerhead turtles and is clearly a major feature of the Shark Bay World Heritage Area.”

(Dr Bob Prince)

return to the sea without laying. But, if they find a suitable site, they’ll begin the remarkable process of excavating their egg chamber.

Once they’ve cleared a body pit with their front and hind flippers, they’ll use their back flippers to dig a deeper hole. They can reach their hind flippers amazingly deep into the sand, using one flipper to pull out the sand and the other to flick it away. It’s a slow but fascinating process.

Then, if she deems conditions just right, the female will lay her eggs, pushing out more than 120 eggs into the chamber. She enters a trance-like state, making it safe to approach closer from behind without disturbing the process. If you’re lucky you can just make out the soft white eggs plopping out into the egg chamber below.

Eventually she finishes laying and spends a long time covering the chamber and flicking sand over the nest site in a bid to camouflage it. She then turns and begins her way back to the sea. It’s then that the monitoring teams spring into action.

Following a strict code of conduct, they approach quickly, holding the turtle

still to check for existing tags. If there’s a tag they’ll record the data, if not, they’ll quickly insert a titanium tag into her front flipper. If there’s not many other turtles on the beach, they’ll also take the time to measure her. However, the beach is often busy, so they move from one turtle to the next checking for tags, collecting data and adding new tags.

Deep into the night, the turtle traffic begins to slow. The tired turtle monitoring team will wait in the dark, as shooting stars streak across the sky above, until they declare it a night.

The next morning, another staff member returns to the beach before sunrise. Their job is to walk the entire length of the beach, running a pole over the turtle tracks so the night teams can recognise new tracks. They also count all the new tracks to show how many turtles visited the beach after the turtle monitoring team went to bed each night.

FINDINGS

The WA Marine Turtle Program database holds 36 years of monitoring data—including 32 years for loggerhead turtles and information for 10,441 individual turtles that have been

Top left Night time monitoring.

Above left Marking and counting tracks.

Above Turtle monitoring.
Photos – Samille Mitchell/DBCA

tagged at Dirk Hartog Island since the program began.

These data can be used to monitor the distribution, size and health of the loggerhead turtle population nesting on the island. In order to understand turtle population trends, given the reproductive rates and longevity of sea turtles, it’s vital to have long-term information that spans several human generations.

Discover more about turtle monitoring on Dirk Hartog Island

Scan this QR code or visit Parks and Wildlife Service’s ‘LANDSCOPE’ playlist on YouTube.



THE ISLAND EXPERIENCE

The staff and volunteer team camps in the relative luxury of the old lighthouse keeper's quarters at Cape Inscription at the northern-most point of the island. Perched atop towering cliffs, the structure was built in 1908 and features thick walls, high ceilings and sweeping verandas. The walls show the evidence of much earlier guests, with graffiti from the 1930s etched into the stone.

After a night of monitoring, the volunteers get up late and spend the days exploring the coastline. It was here, in 1616, that Dirk Hartog visited this very place, becoming the first recorded European to set foot on Western Australia.

He left behind a pewter plate announcing his visit, a replica of which

stands at Cape Inscription today. It's fascinating to imagine these adventurers coming ashore here, to a harsh and arid land so vastly different from the gentle green fields of their Dutch homeland.

While the volunteers may not see elusive native threatened animals, they delight in the knowledge that a recent restoration project has seen the eradication of feral animals from the island. The *Return to 1616* program is designed to return the ecosystem to the state it was in 1616 at Hartog's visit. You can read more about the program at sharkbay.org.

This has allowed native species such as the Shark Bay bandicoot, Shark Bay mouse, rufous hare-wallaby, banded hare-wallaby, greater stick-nest rat, and dibbler to once again thrive on the island as they

did when Hartog arrived more than 400 years ago.

It has also helped the island to remain as pristine as possible for the turtles who return to their birthplace, emerge from silvery seas, and lay their eggs in the moonlight.

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Above left Lighthouse keeper's cottage, Dirk Hartog Island.

Photo – Samille Mitchell/DBCA

Above Loggerhead turtle hatchling.

Photo – Jiri Lochman

Below left Loggerhead turtle at Ningaloo.

Photo – Craig Duncan

Below Turtle Bay, Dirk Hartog Island.

Photo – Samille Mitchell/DBCA

Dr Prince's legacy

Dr Bob Prince began tagging turtles for capture-mark-recapture studies in the 1980s in locations such as the Lacepede Islands, Muiron Islands and Ningaloo. He worked collaboratively with many communities and used his vast networks to identify conservation areas in need of protection and research. Turtle monitoring on Dirk Hartog Island was driven by his interest in determining the southern-most boundary of the loggerhead turtle population and understanding more about what was a little-known marine turtle species. Having started at the Department of Fisheries and Fauna in 1969, Dr Prince continues to volunteer his time to turtle research at DBCA even today—aged 80. His legacy continues, and as recently as this year a turtle that Bob had tagged in 1994 at Dirk Hartog Island was identified at Turtle Bay. This same turtle has returned 13 times in the 19 years since it was tagged!



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