

Millennium Markers

And the giants ascended no more

CHAN ENG HENG marks the passing of a natural wonder in this week's instalment of Millennium Markers.

THE year was 1955. Mat Nor, an 18-year-old from Rantau Abang near Dungun, Terengganu, had just returned to his kampung house from a night out on the beach where he had yet again borne witness to the droves of leatherback turtles which lumbered ashore to nest. These gentle giants had been doing this as far back as he and his father--and his father before him--could remember.

A hundred turtles had landed the previous night, yielding more than 8,000 soft-shelled tennis ball-sized eggs along the 5km stretch of beach known as Rantau Abang Dalam. The egg collector had paid a licence fee of \$13,175 for the concession. It was indeed a lucrative business. In the mid-50s, close to a million leatherback eggs were harvested per year, according to the earliest documented records. At 10 cents an egg those days, the gross revenue from the sale of eggs came easily to \$100,000, a hefty sum to be made, even if it was shared by the whole village.

In December, as Mat Nor talks about the long lost glory of the leatherbacks, I can sense the deep sadness in his voice. His eyes are moistened, and so are mine, as we talk about the nine nests deposited for the whole season this year, with Rantau Abang yielding only two of these. Our hearts are heavy, grieving for a gentle giant that was too meek to fend for itself.

Mat Nor had known them for half a century, and I, a little over a decade.

The old man is convinced that fishing activities alone have been the cause of the demise of the leatherbacks, quite carefully veering away from the effects of the collection, sale and consumption of eggs, activities he had been party to for the last 20 years.

Mat Nor is partly right. In a paper I wrote for the *Chelonian Conservation and Biology Special Focus Issue on the Leatherback Turtle* in 1996, two periods of severe declines were identified.

The first, between 1972 and 1974, coincided with the period of rapid development in the fishing industry in Terengganu and the introduction of trawling. Nestings during this period declined by more than 700 per year.

The second wave of steep declines occurred between 1978 and 1980, coinciding directly with the introduction of high seas drift nets in the North Pacific. Leatherback turtles, being the most pelagic of all turtle species, have been the most vulnerable to these "curtains of death." Therefore, local as well as high seas international fisheries have taken their toll on the leatherbacks.

In 1997, the decline of the world's largest leatherback nesting population along the Pacific coast of Mexico was also attributed to a distant commercial gill net (another term for drift net) fishery operating in Chilean and South American waters. With an estimated fishing mortality of at least 2,000 leatherbacks per year, the intense conservation efforts of Mexico at the breeding grounds was said to have been wholly negated.

But one single factor could not have brought the magnificent leatherbacks down.

They have been plagued by decades of stolen eggs and unborn babies for which the humans of Terengganu, and Malaysia at large, are solely to be blamed. Thought to possess aphrodisiac properties, their eggs had been in demand and made available to fuel an unsatiable human appetite even from the very early days.

The effects of complete egg harvests can never be recognised until whole generations of reproducing turtles are gone and there are no future generations to replace them. This is essentially what has happened to the leatherbacks of Terengganu.



Could these be the last tracks of the leatherback? Trend analysis has predicted extirpation by 2003.

Protection of eggs came early enough, in 1961, but the knowledge that most of them needed to be protected to sustain the population came too late.

It was only in the late 80s that the beginnings of 100% egg protection came when the Terengganu Government banned the commercial sale and consumption of leatherback eggs. But by then, it was way too late. The population had plummeted more than 95% and protecting 100% of the eggs then was no more than the pathetic 10% incubated in the 60s.

Another setback came to light when I initiated studies on sex differentiation in 1987 and provided evidence to show that all the years of hatchery incubation between 1961 and 1987 had been producing almost 100% female turtles.

This explained why large numbers of nests failed to hatch and, when the eggs were opened eventually, there had been no signs of embryonic development: some of the female turtles were laying eggs which had never been fertilised. There just weren't enough male turtles to go round!

Whether a turtle egg produces a female or male hatchling is solely determined by the incubation temperature. High temperatures--such as those in hatcheries totally exposed to the sun--produce predominantly females while cool temperatures results in males.

Armed with solid scientific evidence, I was able to convince the practitioners of leatherback management and conservation at Rantau Abang to subject some nests to male-producing temperatures. However, as in the decision to ban consumption of leatherback eggs, this came too late. It was to be a futile race against time to save the leatherback.

Meanwhile, tourists continued to converge on Rantau Abang. On one night in 1985, I counted no less than 1,000 jostling tourists crowded around one leatherback trying its best to keep track of its instincts. Inevitably, it failed.

Yet, its attempts to return to the quiet sea was impeded by tour guides using thick lengths of bamboo to keep it ashore for as long as they could to earn the few extra dollars from newly arrived tourist. Turtle watching rules were introduced in 1988, but now, will there be a need for them to be implemented? The turtles have gone, and with them, the tourists too.

At sea, there has been no respite either. The turtles swam in a sea of debris and plastics, often mistaking the plastics for jellyfish, their staple food and choking to death on them. Fishing nets, ropes and traps of all sizes and types got in the way too.

An interviewed-based survey of fishermen in 1985 led to the conclusion that fishing activities in Terengganu accounted for the death of almost 400 leatherbacks per year at that time. Something clearly had to be done to arrest this massive kill. But what and how? Those were frenzied years as I knew that time was running out.

As if in answer to my feelings of despair for this great beast, Universiti Putra Malaysia was offered a RM50,000 IRPA (Intensive Research Priority Areas) grant for leatherback research.

I grabbed it and straight away planned for a radio-tracking study to determine the movement ranges of the animal during the nesting season. This would provide the scientific basis for the establishment of an offshore sanctuary where harmful fishing gear could be banned.

The study was done, with the discovery that the turtles moved to the northern and southern extremes of Terengganu waters, and returned again to Rantau Abang a few days before the next nesting was due.

Turtle traffic appeared to be concentrated within 10km of the coastline, spanning a longshore distance of 30km, with its centre in Rantau Abang. This area, with the offshore boundary extended to 10 nautical miles (18.5km) was legally established as the Rantau Abang Fisheries Protected Area in 1991.

The alarming revelation of turtle mortalities in fishing gear also fuelled investigations carried out by the Fisheries Department which identified the *pukat pari* (large-meshed sunken gill nets for catching ray fish) as the major gear impacting sea turtles. Subsequently, all gill nets with a mesh-size exceeding 25.4cm (10 inches) were banned from the coastal waters of Malaysia.

Time would reveal that these two fishery regulations--put in place for the sole purpose of offering protection to turtles--in effect offered little respite.

Enforcement posed a major problem and, as recently as 1997, Mat Nor told me that a persistent *pukat pari* operator from a nearby kampung had continued to kill leatherback turtles in his nets.

Elsewhere, other species of turtles remained vulnerable as *pukat pari* fishermen continued their operations by simply reducing their mesh sizes to a little less than 10 inches.

In retrospect, all these last ditch attempts at saving the leatherback over the final years of the millennium cannot stave off their inexorable decline. Trend analysis has predicted extirpation by 2003. With 1998 and 1999 yielding only 19 and nine nests respectively, the day of complete annihilation appears to draw even nearer.

The eve of the new millennium has seen the last few leatherbacks ever to tread the shores of Terengganu. To Mat Nor and the villagers of Rantau Abang the new millennium will never be the same. There will be no more busy nights, and no more money to be made. For the benevolent leatherbacks, which for so many decades had shaped the tempo of life at Rantau Abang, are gone and will never grace her shores again.

This millennium has marked the passing of not only the majestic leatherbacks, but also the olive Ridley and hawksbill turtles in Terengganu. The only species of sea turtle which continues to nest in significant, albeit much reduced, numbers is the green turtle.

As we say goodbye to our lost species, let Malaysians come together to save the green turtle. There is urgency, for it is now known that the battle is a lost one if we wait for the final remaining years of the existence of a species before we decide to take action.

Let us be reminded that when the last of a species disappears, we, who are but another species on Earth, will be brought nearer to our own end.

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Millennium Markers is a weekly series that looks at events and happenings that shaped Malaysia and the surrounding region over the last 1,000 years.