

Fast-tracking turtle conservation



The recent discovery of another loggerhead turtle rookery by the Gnaraloo Turtle Conservation Program means it's all hands on deck to give the hatchlings a head start in life. **Mitch Brook** gets an insider's perspective.

They say slow and steady wins the race, but when it comes to species conservation, perhaps a little hastiness would be a boon for sea turtles. WA's Gnaraloo Station, adjacent to the Ningaloo Marine Park and the Ningaloo Coast World Heritage Area, is playing a vital role in researching several endangered sea turtle species and protecting them from extinction.

The reproduction statistics of these species make you wonder how the turtles survive without assistance. Just one in 10,000 Ningaloo Coast hatchlings, for example, will survive to sexual maturity, which for loggerheads occurs at about 30 years of age. You can see why they need a bit of help and a hurry-up.

Gnaraloo is a privately leased pastoral station and a wilderness tourism business. In 2005 the leaseholder of the station, Paul Richardson, initiated the Gnaraloo Turtle Conservation Program (GTCP) to research the turtles that frequent the adjacent coastline. The program is almost entirely funded by the income of the station.

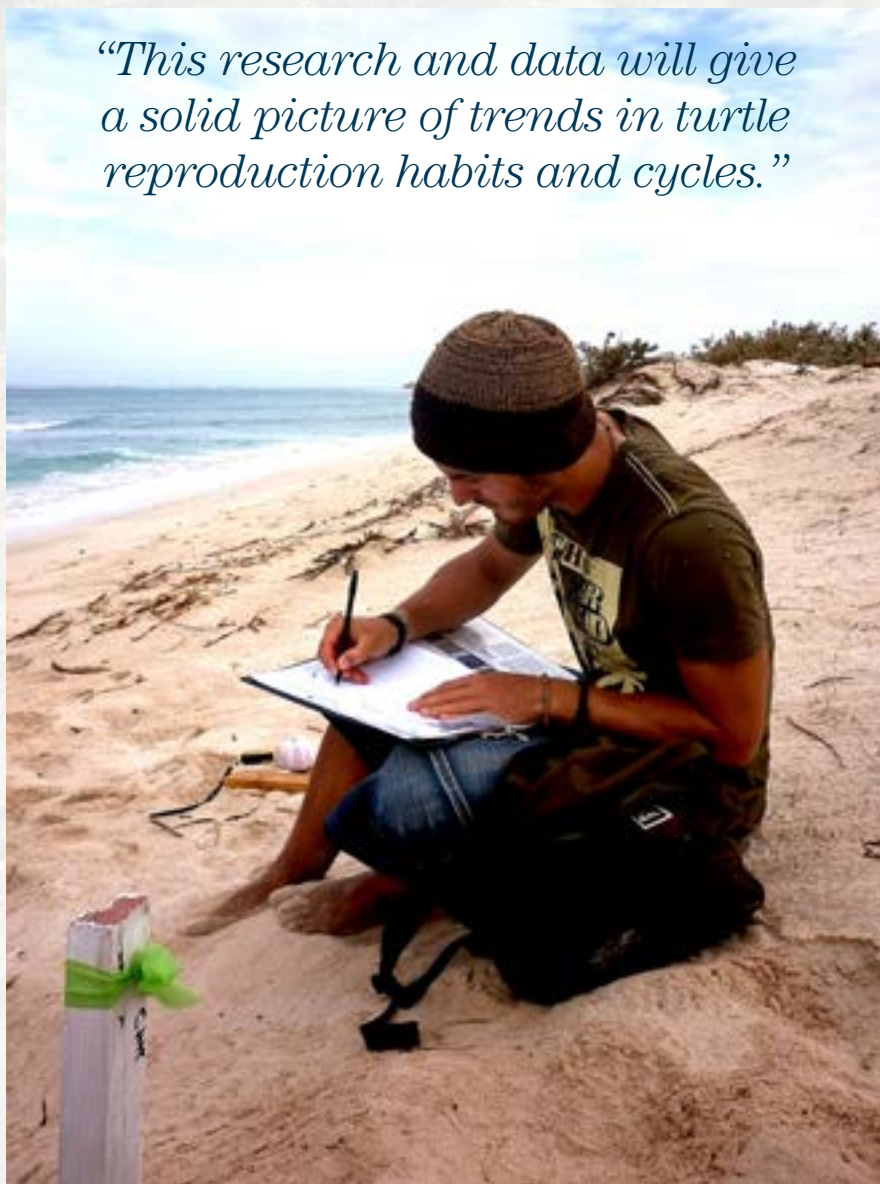
"It's rare to come across a project with so much heart," says environmental adviser and project manager Karen Hattingh. "The turtles' chances are so against the odds and the research program is run on the smell of an oily rag, but it does so much good."

Karen works full-time on the project with the assistance of interns and volunteers. The program is examining long-term trends in the activities of endangered sea turtles along this stretch of coastline with the aim of protecting them from extinction. Short-term, the team supplies data to decision-makers about the turtles and their coastal nesting areas. Further objectives include identifying and protecting important coastal nesting areas, training interns for scientific careers, and encouraging community awareness and engagement with sea turtles and conservation issues in a broader sense. More than 90 candidates from all over Australia and the world applied for the four seasonal positions under the GTCP Scientific Internship Program during the current 2012/13 season, which ends in June 2013. ➔





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Three species of sea turtles are currently monitored at Gnaraloo: the endangered loggerhead and green turtles, and the critically endangered hawksbill turtle. All three species have been recorded in the two important rookeries on the Gnaraloo coast: the Gnaraloo Bay Rookery and the Gnaraloo Cape Farquhar Rookery, which was recently discovered. These rookeries form an essential part of the third-largest loggerhead population in the world, and the GTCP research team is working hard to preserve it.

Without protection and community awareness, these coastal breeding and nesting sites could easily be threatened or destroyed because of lack of scientific knowledge, or proof of their presence and significance. “Driving on the beach is regarded and enjoyed as something of a birth right in WA,” Karen says with a laugh, “but you can imagine the impact of 4WD traffic on coastal turtle and bird nesting sites. The wheel ruts that are formed trap turtle hatchlings, making it harder for them to reach the water and more vulnerable to predation and dehydration. Because of this and to protect other palaeontological fossil and heritage fragments required for carbon dating by scientists, driving is not allowed on beaches and dunes at Gnaraloo.”

There’s also the threat of development on critical turtle breeding beaches, says Karen: “Without our intervention, this beach would have been like any other in Australia where some developer would say, ‘I want to put a hotel on it,’ and the turtles, which are critically endangered already, would be wiped out and we wouldn’t even know.”

Karen and her team monitor the turtles’ nests throughout the nesting season (November to February), conducting daily surveys, which involves identifying nests, tracks, unsuccessful nesting attempts and determining which species have left the evidence. The team also tracks failed nests and nests disturbed by predators or environmental factors. GPS equipment assists the researchers to make maps of the data, including density and distribution. It’s hoped this research and data will give a solid picture of trends in turtle reproduction habits and cycles.

It’s certainly not a quick process, though. “For loggerhead turtles, you need a 🐢

FAST FACT

The famous surf waves known as Tombstones are off the coast of Gnaraloo. Surfers often stay at Gnaraloo Station to gain access to the waves.



minimum 30-year baseline,” says Karen. “So we need to keep going for 30 years.

“This not-for-profit program with no external funding has to run every year, back-to-back, for 30 years before we’ll know what’s going on with the turtle population at Gnaraloo. Is the population okay? Is it declining? What are the human or environmental impacts on it? We won’t know until the 30-year point, and we need to know if these factors are significant so we know what we need to do to protect the turtles.”

A vital aspect of the team’s work involves the use of geographic information systems (GIS) mapping technology to locate and keep track of nesting sites and activity. Karen explains how the identified nesting areas can inform scientific research: “The maps could show, for example, that there is a cluster of loggerhead nests at the north of the beach, and a cluster of hawksbill nests in the south. This allows us to ask questions like, ‘I wonder why loggerheads prefer the north and hawksbills prefer the south?’”

More research is then conducted to increase understanding of the turtles’ breeding habits and allow for better protection. Furthermore, this extra information enables a project manager such as Karen to design experiments to determine the reasons for preferential differences between the species.

The GTCP can’t afford the fees for seasonal copies of the GIS software, but the ability to create these maps is essential to the project, especially when it comes to reporting the findings.

“We give these reports free of charge to government bodies, other turtle researchers and universities,” says Karen. “I can’t produce proof of our findings easily without maps.”

Fortunately for the Gnaraloo team, Esri Australia supports the GTCP by supplying this technology each season, in addition to providing off-site user support. While it would be difficult to convince decision-makers to read screeds of text describing the locations of the turtles’ nests, showing them an image is much ☺



Above, inset left:

The loggerhead turtle is one of the endangered species monitored by the Gnaraloo Turtle Conservation Program team; an intern inspects a deceased turtle.

more agreeable. The same amount of information can be absorbed in a fraction of the time, says Karen.

Tom Gardner, WA business development manager for Esri Australia, is proud that the company is involved with initiatives such as the GTCP. "Esri Australia has done a lot of work with not-for-profit and other organisations to make the world a better place," he says. "We appreciate the use of geographic analysis to improve decision-making and create better outcomes for the environmental sector." Karen values the use of this GIS technology to make reports simpler and quicker to comprehend.

"People always ask what they can do to help the Gnaraloo turtles," she says. Luckily, Gnaraloo Station also runs a pastoral stock and wilderness tourism business (with a percentage of its income funding the turtle program) where visitors can assist researchers. "We take community groups and primary and high school students out with us on morning patrols," she says. "They attend a briefing the night before and we let them become involved with us under supervision. We get them to identify nests and tell us what species the turtle is. They take the GPS and fill in the data sheet."

It's a popular activity that benefits all involved: the community, the GTCP and, most importantly, the Gnaraloo turtles. "People absolutely love it!" Karen says. "We include them and get the message out about what's going on. Without that, there would be no awareness of the significance of this area." 📍

Visit www.gnaraloo.com or *Gnaraloo Turtle Conservation Program* on Facebook for more information about the GTCP or staying at Gnaraloo and working with the researchers.

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This image: The Gnaraloo team conducts daily surveys along the beaches of the station to monitor turtles' tracks and nesting activity.



GNARALOO FERAL ANIMAL CONTROL PROGRAM

Complementing the Gnaraloo Turtle Conservation Program (GTCP) is the Gnaraloo Feral Animal Control Program (GFACP), which works to contain populations of foxes and feral dogs and cats. Just one in 10,000 loggerhead turtle hatchlings on the Ningaloo Coast reaches the reproductive stage of its life, and before the GFACP up to 100 per cent of all turtle nests were ransacked by feral animals before the eggs could hatch. Since the introduction of the GFACP, which is run by a licensed contract specialist, Gnaraloo hasn't lost a turtle nest for the past three seasons. "That's three years of 100 per cent nest protection," says GTCP project manager Karen Hattingh. "Paul [Richardson, leaseholder of Gnaraloo Station] and I worked out the numbers: This means there are roughly 50,000 turtle hatchlings going into the water per season. That makes you feel like your work amounts to something!"