

All the way to Australia

Following the track of the sea turtles
From: Einat Daniel



Green sea turtle. Photograph: Claire Guillaume

As I graduated the Master's degree in Plant and Environmental Sciences at the Hebrew University of Jerusalem, studies in which I spent endless lab hours, I decided to embark on an adventure in which I would be able to look nature straight in the eye rather than through a microscope. After conducting a tedious search over the web, I decided to submit my candidacy for the sea turtle preservation program in far and down under Australia in the Gnaraloo Turtle Conservation Program. The project was launched in 2008 and is sanctioned by the Australian government.

The sea turtle is an ancient animal found in nature for millions of years since the days of the dinosaurs. Nowadays, due to extensive fishing and exploitation of the seashores by mankind, all seven species of sea turtle are in grave danger of extinction. Even in Israel, there are projects taking place aiming at conserving the sea turtle female, nesting in our shores, yet as the strip of beach is very small and influenced by massive human pressure, the conservationists' efforts become even tougher.

1. The project team for 2013/14: Me - the first Israeli participating in the project, Casey – The Project Assistant from Australia, Brandon – from Melbourne in south eastern Australia, Karen Hattingh – The Project Manager, Nora –The American and Ashleigh - from Perth in Western



2. A loggerhead nesting early in the morning on the shores of Gnaraloo. Sea turtles usually nest during the night, but this sea turtle surprised me when I saw her coming to nest during early morning survey.



Before leaving for my trip, I popped over to the National Sea Turtle Conservation Center in Michmoret to learn all I could about sea turtles and the conservation efforts made in Israel. In the center, after receiving a short introduction given by the staff, I visited the center's rehabilitation pools where turtles hit by fishing boats along the Israel's coastline were being treated. The immense pain of viewing these amazing animals with missing fins, a broken carapace or breathing difficulties was mingled with the gladness of witnessing the care they are given by the center's staff. The visit led me to the realization that in order to save the sea turtles, extensive action

3. Red Kangaroo in Gnaraloo Reserve is not a rare phenomenon, yet it causes an excitement every time you see it bouncing elegantly or hiding in the shade of the trees.

should be taken to change the human activity along the shores and in the sea.

After going through endless red tape and finally getting the long expected visa to Australia, despite the fact that it was just for three months, packed with mental preparation to such a trip, I showed up at the airport to embark on what was intended to be my magical tour of the sea turtles.

I spent my first days in Perth, the largest city in Western Australia, down with a fever possibly a drawback of the long flight. A twelve-hour bus trip from Perth got me to the town of Carnarvon worn out and exhausted. In Carnarvon I met Casey, the project assistant, that judging from her heavy accent, cross country driving skills and country music coming out of her

Jeep, it was evident she was brought up in a West Australian ranch. Carnarvon is a small and desolate town with very few attractions and the thought of the station I was headed to, with the additional two-hour trip there, got me having second thoughts about the experience ahead of me.

After a few boring hours, the rest of the volunteers arrived: Australian Brandon and Ashleigh and with them, Nora packed with her vibrant American energies. We were all academics in the fields of biology and environment. After a brief introduction, we headed out to Gnaraloo Station, a working pastoral station and wilderness tourism business located along the west Australian shore at the south of Ningaloo Marine Park. On our way there, it was already getting dark and we were



1. A loggerhead nesting, just before she is starting to cover the egg chamber. Photography: Ashleigh Shelton
2-4. Crabs dig burrows in turtle nests and predate on their eggs and the little hatchlings. Other enemies are the seagulls and lizards that inhabit the beaches.

going through unpaved side roads in Casey's Jeep and while having an introductory small talk, I found myself excited with the sight of a kangaroo hopping on the trail every few minutes and Casey doing her best not to run over it.

Apparently, there are more kangaroos in Australia than people and unfortunately,



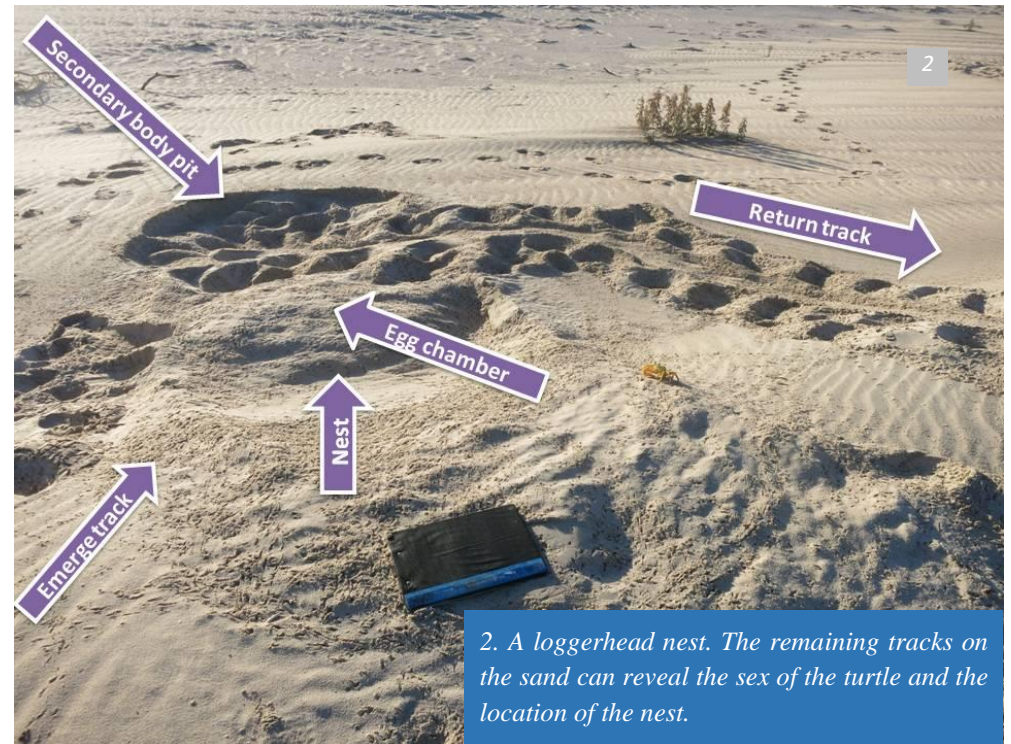
1. Teamwork in replacing a tire in the old program vehicle after driving on the rocky roads. Photography: Karen Hattingh

at night, as they are attracted to the vehicles' headlights, there are many cases of them being hit by passing vehicles.

The more contact I had with Australians the more I noticed I have reasons to fear for my life. I've already heard about the snakes, but then I heard of that spider that bites and causes infections and the lizard that crawls all over you with its razorblade claws and the octopus extracting poisonous substances into the water causing paralysis within ten minutes. This is where I was getting a bit nervous. I was in such a remote place with all these perils threatening me and all I wanted was to volunteer; not to give away my life!

We got to Gnaraloo late at night and met Paul Richardson, the Irish station owner, whom I found very hard to understand at first because of his accent; Colleen, the housekeeper and Feral, the mechanic, an extraordinary character who looked like something coming out of an old Western movie. By the way, Feral is not his real name, but his nickname that in English means untamed, a name well reflecting the man bearing it.

I spent my first night in a dusty shack with American Nora and two bats whose wing flapping woke me up; naturally, it took me a long time to go back to sleep afterwards. The next morning, coming out of the shack, I was overwhelmed by the savage nature opening before me with



2. A loggerhead nest. The remaining tracks on the sand can reveal the sex of the turtle and the location of the nest.

the charming vista of sand dunes and the tranquil seashore close by.

After getting acquainted with the place and checking out the beach, a staff meeting was held in which each was assigned a role and a scope of responsibility. I was put in charge of coordinating arriving visitors and organizing lectures to be held in schools; Brandon was given responsibility over the scientific part of the project; Ashleigh was in charge of maps and the GIS application as well as assisted me with visitor coordination and Nora assisted in the scientific as well as in other more general areas.

During the first week, Casey instructed us in detection of sea turtle tracks,

identifying their activities, the characteristics of each species and how to conduct a survey. We met Karen Hattingh, the project manager, an environmental lawyer and the station's environmental consultant who inspired and motivated us. Additional training was given to us by Mike Butcher from Animal Pest Management Services (APMS) who taught us how to track foxes, dogs and wild cats and to report sightings of their activity since these populations are monitored within the reserve due to the damage they inflict on the turtle egg nests. In previous years, when foxes populated the reserve, approximately all of the turtle nests were eaten by them. Nowadays, due to APMS's activity as part of the Gnaraloo Feral Animal Control Program (GFACP),

there are hardly any foxes in the area and nests are not preyed upon any more. Since the project's launch in 2010 till June 2013, approximately 135,000 eggs of the Loggerhead sea turtle, nesting in the reserve, were salvaged. It is worth mentioning that foxes, dogs and cats are not the turtle nests' natural enemies but predators that reached the coastal area by man and as such, in order to reduce the damage caused to the turtle nests, they must be monitored.

Very soon we got used to the place with its bats, sand everywhere, strong winds, lights out at midnight, numerous goats and sheep and the fact that Gnaraloo turned into our home for the coming months.

Everyone took part in research and the daily survey work. Every morning a couple of scientists would leave for the nearby coast with an old rusty four wheel vehicle. Apart for Casey, none had any experience in open terrain driving, but after a brief training and a lesson on how to change a tire, we were thrown into the water - well, rather into the sand - and we were expected to handle the vehicle all on our own in the rough terrain. We were supposed to reach the survey area by car and from there to proceed with the survey with one scientist walking along the beach southwards, while the other walks northwards. The survey area is about seven-kilometer-long. We were looking for tracks and activity signs made by the turtles at night, leaving imprints of the soft sand all along the beach. These imprints helped us distinguish the species of the sea turtle leaving them. The turtle species nesting in Gnaraloo are the Loggerhead sea turtle (*Caretta caretta*), the Green sea turtle (*Chelonia mydas*) and

the Hawksbill sea turtle (*Eretmochelys imbricata*), the same species that can be found on Israeli beaches. Each walks in a different way, creating different patterns in the sand. Turtle activity can be interpreted by understanding the process the female sea turtle goes through by building the nest and the imprints she leaves in the sand as part of this process. When the female turtle builds the nest, she digs a first body pit, moves forward a bit and when within the pit, she uses her rear flippers to create the egg chamber. After the eggs are laid, she moves forward and begins to dig a secondary body pit, actually dug to cover the first pit - the nest. Looking at the female sea turtle's tracks, one can tell whether the success or failure of the nest digging by trying to find this pattern. One looks for the way the sand is laid. If it was moved, you can see whether it looks like a "loose" pile and whether there is vegetation that was uprooted and laid on the nest. Usually it is quite simple to notice. Sometimes, female sea turtles try digging a nest and upon sensing a threat or that the location is inadequate, give up the attempt and return to the water without completing building the nest. In such cases you can see attempts of digging without covering it up or a trail of tracks returning to the water without digging, which can be a bit confusing when characterizing the activity. We use GPS to mark the activity location's coordinates. This method of survey is titled Track Monitoring.

The first survey days were right before the beginning of the nesting season so there was no activity to see at all. The sea turtle's nesting season in the reserve begins in November and lasts up to the end of February. Walking on a noncivilized beach early in the morning

was soothing and inspired reflection. The first encounter we had with turtle tracks was exciting and was the first time we put the knowledge we have learned to use. As days went by, the nesting season reached its height and we recorded dozens of turtle activity on the beach every morning. In order to learn our own identification error rate, we began to perform night surveys, in which we observed female sea turtles coming out of the sea to nest. A night survey takes approximately 6 hours of walking back and from in the sample area's busiest part. During my first three nights of survey, we did not see any turtle. It was pitch dark and the curious crabs came out of their burrows to check out whether our feet and equipment were edible. The stars above were so bright that you could clearly see the Milky Way and from time to time we could see shooting stars rushing across the sky and only in the dead of night did the lazy moon come out to shine over the dunes. Use of torchlights is prohibited to avoid scaring the turtles and only red lights are allowed, but they were of very little help. Every shrub looked like a nesting female turtle and every rock resembles a turtle coming out from the sea, but after walking up and down the beach dozens of times a night, you memorize the confusing elements. Suddenly, we saw fresh turtle tracks in the sand without a return route into the sea. We realized there was a female turtle nesting close by. We ducked and began crawling along the tracks until we could see her, sitting patiently laying the eggs one by one. A female sea turtle can lay more than 100 eggs in a single nesting event. While laying the eggs, she is totally oblivious to her surrounding so this is the time to examine the process from close range. The excitement I felt upon seeing the big

Loggerhead turtle and her eggs fell upon me without any warning. I sat fascinated by the long process. When she was over laying the eggs, she slightly shifted, revealing the pit with the eggs, a second before she began covering it with sand using motherly embracing motions resembling kneading dough. This is the closest she will ever get to her offspring, because as soon as she finishes covering the nest, she will return to the big cold and dangerous ocean and off to her wandering. Of all her offspring, only a few, if at all, will manage to cross the many obstacles and reach the waterline and from there to maturity. Danger lurks around it all along the way. Even in man-free beaches there are crabs, birds and shark that await an opportunity to prey on them.

Between day and night surveys, we performed office work promoting the project among the local community and on the web, writing scientific reports and hosting visitors who came to learn of the project and the sea turtles. Among the visitors were also school groups who stayed in the area for several days and accompanied us on day and night surveys, hikers who visited the area, scientists and civil servants who came to get an impression of the project. We even had the honor of hosting the Minister of Science of Western Australia for a three-day visit to the reserve where she was given with a presentation, joined us to our surveys and to tour of the reserve.

In our spare time, we managed to take some time to pop over to the beach, enjoy the hot sun and snorkel in the marine part of the reserve. Although I was the only Jewish person in the station, Hannukah was celebrated. Every evening, we lit



1. Cooking together. Food and accommodation were provided by the owner of the station and every day we prepared various creative recipes that we know from home.

Photography: Ashleigh Shelton

Hannukah candles sent to me from the Holy Land, ate traditional doughnuts and potato pancakes I made myself and I gave everyone a full explanation on the significance of the festivity. When it was Christmas time, we decorated a plastic tree and had a big dinner to which all the people of the station were invited. Workers and volunteers from all over the world arrived at the station for short periods: Germans, French, Dutch and Japanese who helped with the house maintenance chores and gave us refuge when we got on one another's nerves.

In addition to the daily survey area, we conducted several days of survey in a beach located 22 km to the station's north

in a place called Cape Farquhar. Carrying out a survey in this area required staying for four nights in field conditions, namely sleeping out in the open and worst of all, not showering for five days. Luckily, for me, the Australian invented some kind of sleeping bag combined with a tent called Swag. It folds like a sleeping bag, but has a mattress in it and can easily and quickly opens up to a tent equipped with a mosquito net. This truly smart invention made the outdoor nights much bearable. Despite the craving for a shower, the experience in Cape Farquhar was amazing. It is a reserve closed by a gate, barring entry by visitors, making wild nature reach its peak. Under every tree is a kangaroo, large Monitor Lizards (locally called guanans) hide in the bush, emu bird race on the dunes and eagles take high positions and rule the area by sight. Beaches are untouched, the water is clear, there is a dense and colorful abundance of corals, fish of any kind and the jewel in the crown is a multitude of sea turtles, ranging from tiny young ones to huge adults. All you need to do is sit in the shallows, put on a mask and snorkel, look forward and you feel as if you sit in a gigantic aquarium. There we were three girls and a Jeep for five whole days. We practiced our terrain driving skills, lit a fire every evening, cooked outdoor dishes and tanned on the beach. It wasn't easy leaving Farquhar, but I took comfort with the hot shower back in the station.

Unfortunately, I had to leave the project before its conclusion as my Australian visa expired. My friends are still in Gnaraloo until the end of the nesting season at the end of February. Now they have the opportunity of witnessing what I cannot: tiny turtles hatching and dashing to the ocean. Upon conclusion of the

survey days, they will visit schools throughout Western Australia and tell students about the project and sea turtle conservation.

At the moment, there are over 400 nests in the area of the survey, granting Gnaraloo a status of an important sea turtle rookery and in fact, it is one of the largest and main natural habitats of the Loggerhead sea turtle, which is the main species nesting at its beaches. Nevertheless, the Hawksbill sea turtles and the Green sea turtles were observed nesting there too. One of this project's main objectives is to gather continuous data to examine tendentiousness in sea turtle activities on the beach throughout time. However, in order to examine this in a reliable way, it takes at least 30 years of data gathering allowing proper planning of the efforts to preserve the sea turtles within the reserve and would contribute to worldwide research on sea turtle. Another objective of the project is to show the world the hardships of the sea turtles and to educate towards preservation of nature and the

environment. This is why the volunteers offer training on site and lectures in surrounding schools.

I was the first Israeli to partake in the GTCP project; however, you can also make a contribution and gain an extraordinary experience. Every year, graduates of biology and environment related degrees are recruited from all over the world, for 6 months or fascinating work. Every one of us can make a difference to save the sea turtles and the beaches in general, by keeping the beaches clean from plastic bags and other waste which is harmful to the aquatic life.

For further information, you are invited to visit our Facebook page and give us a Like at [Gnaraloo Turtle Conservation Program](#) or come visit the project website at www.gnaraloo.com.au

2. Celebrating Hannukah. Despite being the only Jew, we all celebrated Hannukah by lighting candles and eating donuts and latkes.



