

2022



ANNUAL REPORT

CHAKAR HUTAN PROJECT SITE
JUNE - NOVEMBER



LANG TENGAH TURTLE WATCH

www.langtengahturtlewatch.org

Prepared by:

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ACKNOWLEDGEMENTS

We at Lang Tengah Turtle Watch are continuing our efforts to save sea turtles from extinction. Such efforts would not have been possible without the strong support from and ongoing collaborations with the Department of Fisheries Terengganu.

We are highly indebted to CIMB Foundation and Yayasan Sime Darby for putting their trust in us - by funding this project and making it a reality. We truly appreciate it.

We would like to express our heartfelt gratitude to all our collaborators, partners and stakeholders, including WWF-Malaysia, Turtle Conservation Society Malaysia, Geng Plastik Ija, Fuze Ecoteer, Perhentian Turtle Project, Universiti Malaysia Terengganu, Su Yin & Steve Hagger, ecoCare-MNS and Turtle Conservation and Information Centre, and last but not least, MEKAR (Persatuan Khazanah Rakyat Ma'Daerah). We are also thankful to the licensed egg collectors who ensured that the turtle eggs were sent to the hatchery with care.

We are really grateful to have a wonderful team. All the hard work presented here was carried out by the following dedicated people: Wan Zuriana Wan Sulaiman, Mohd Zulkarnain Mohd Dali, Pok Hasim Ismail, Abidah Zaaba, Isandra Shazlynn, Dr Long Seh Ling, as well as the DoF rangers.

Not forgetting our awesome interns for their invaluable help in all turtle conservation activities: Wan Muhammad Aiman, Adam Akmal Mohd Fadzli, Muhamad Anas Ramli, Muhammad Afiq Karim, Muhammad Aiman Hakim, Beh Lih Khiang, Audrey Symplicius and Amir Aizat.

Our utmost gratitude is extended to our directors, Hayati Mokhtar, Raphe van Zevenbergen and Dato' David Morais, for their ongoing support and advice. We would also like to thank our Operations Coordinator, Eileen Yau, and Admin Assistant, Chen Suet Yen, for supporting the project.

Last but not least, we would also like to extend our sincere thanks and appreciation to all the people who have directly or indirectly helped us throughout the season.

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INTRODUCTION

Chakar Hutan beach is located in Kerteh, Terengganu and is one of the high nesting beaches on the mainland. In collaboration with the Department of Fisheries Terengganu (DoF) in 2022, we extended our conservation efforts to this new project site. We patrolled the beach, alongside their rangers, to monitor the nesting green turtle population and protect their eggs in a hatchery.

On average, the 1.4-km beach records up to 300 nests a year, with at least 41 female turtles coming to nest in 2022. In July, we set up a hatchery at Chakar Hutan to incubate the nests laid on the beach, rather than relocating them to Ma' Daerah Turtle Sanctuary, as was the case before. The hatchery also received green turtle and painted terrapin eggs from licensed egg collectors.

Chakar Hutan beach is a sandy beach with plenty of Casuarina trees. It is also popular among the local community as a recreational beach. Besides conserving turtles, the project promotes 'edutourism' to raise awareness through local engagement in conservation and tourism. At the same time, it also supports community livelihoods by providing job opportunities and income.



Our hatchery signboard at Pantai Chakar Hutan.



OBJECTIVES

This project aims at capacity building of local communities and supporting their livelihoods through turtle conservation and tourism, while expanding sea turtle conservation efforts.

The **objectives** are:

1. To create awareness, build capacity and engage local communities - including the younger generation - in conservation and research.
2. To support community livelihoods through the creation of employment and income through turtle conservation and tourism.
3. To save more turtle eggs to conserve the turtle populations from extinction through long-term monitoring and research as well as their habitats.

The Chakar Hutan project also contributes to the **United Nations Sustainable Development Goals:**



OUR TEAM

Dr. Long Seh Ling
Principal Officer



Seh Ling oversees LTTW operations and finances, as well as maintaining public relations with relevant stakeholders. Her responsibilities include strategic planning, research development, fundraising, training, and staff recruitment.

Wan Zuriana Wan Sulaiman
Project Manager

Wid lives in the vicinity and has been involved with conservation work in Kerteh since 2018. She joined LTTW in June 2022 as the Project Manager at the Chakar Hutan site. Before that, she had worked with Perhentian Turtle Project and the Malaysian Nature Society - ecoCare (MNS).



Mohamad Zulkarnain Mohd Dali
Asst. Project Manager

Moza joined LTTW in July 2022 as the Assistant Project Manager. He was a graduate of Universiti Malaysia Terengganu in Marine Science. He was responsible for monitoring the nesting activities.



Hasim Ismail
Hatchery Ranger

Pok Hasim is a local from Kerteh with experience in sea turtles night patrol and hatchery management since 2011. He used to work with egg collectors in Kijal and Kerteh.



RESEARCH ASISSTANT INTERNS

The project offers a learning ground for young people who are passionate about conservation. We have trained and provided field experience to six students from Universiti Malaysia Terengganu (UMT), Universiti Malaysia Sarawak (UNIMAS) and Xiamen University and TATI University College.



**Adam Akmal
Mohd Fadzli
UMT**



**Muhamad Anas
Ramli
UMT**



**Mumammad Afiq
Karim
UMT**



**Mohammad
Aiman Hakim
UNIMAS**



**W. Muhammad
Aiman
TATI UC**



**Beh Lih Kiang
Xiamen
University**

Upon completion of the internship programme, Adam has been offered a job as a swimming instructor in Penang. Meanwhile, Anas has started working at the Underwaterworld Langkawi.



An internship presentation with Dr. Mei at UMT.

SEA TURTLE MONITORING

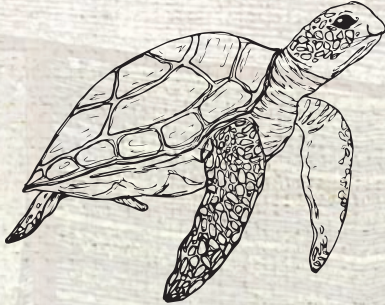
Our main activity is patrolling the beach every night to monitor the nesting sea turtles. Together with the DoF rangers, we have conducted 100 nights of beach patrol from the end of June until October. We were stationed at the beach from 6 p.m. until 7 a.m., patrolling every hour in shifts between 8 p.m. and 6 a.m.

The beach was divided into 28 sections. Each section is 50 m in long. This is for us to know the nesting density along the beach and nesting females' site preference. Each nest laid on the beach was relocated into our hatchery immediately after retrieving the eggs.

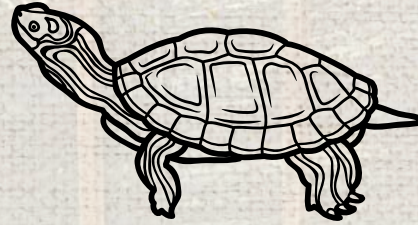
We also collected biometric data of the nesting females, including facial photographs, tag numbers, curved carapace length and curved carapace width. New individuals were tagged by the DoF rangers. This was done using a red head torch after the turtle had finished laying eggs to minimise disturbances to the nesting females.

NESTING DATA

A total of **16,139 eggs** from **231 nests** of two species, **green turtles** and **painted terrapins**, were saved since the inception of the project.



Endangered
Green sea turtle
175 nests
15, 450 eggs



Critically endangered
Painted terrapin
56 nests
689 eggs

As shown in Table 1, these included nests from Chakar Hutan beach as well as tender holders from nearby beaches.

Table 1. Nests from Chakar Hutan beach and tender holders in 2022.

Month	No. of nests laid at Chakar Hutan	No. of nests received from tender holders	Total eggs
July	86	82	11, 133
August	48	2	3, 927
September	12	-	963
October	1	-	116
Total	147	84	16,139



A total of 12,620 eggs from 147 green sea turtle nests were saved from Chakar Hutan beach itself. All the nests were relocated to our hatchery, except for 16 green sea turtle nests from Chakar Hutan. Our hatchery was taken down in early November, and the nests that were laid in September and October would not have hatched by then. For this reason, they were relocated to the hatchery at Ma'Daerah Turtle Sanctuary.

The state government has **amended the Terengganu Turtle Enactment 1951** to **ban the commercial sale of turtle eggs** in Terengganu since June 1, 2022. However, the tender system for turtle egg collection still exists. It is, however, compulsory for license holders to sell turtle eggs for conservation.

Besides patrolling Chakar Hutan beach with the DoF rangers, we also purchased turtle eggs that would otherwise end up in the black market were also purchased from tender holders. As each egg can cost up to RM5, our hatchery has a value of more than **RM70,000** worth of turtle eggs.



A clutch of green sea turtle eggs.

POST-EMERGENCE INSPECTION

Our team conducted nest excavation post-hatchling emergence (PEI) for all nests in the hatchery to determine the hatching and emergence success rates of each nest.

We believe sea turtle work is not exclusive. Members of the public are more than welcome to visit our hatchery and join our conservation activities. Not only would they learn about turtles, but they would also get hands-on experience in conservation work.

Besides learning how to excavate the nest content, visitors can witness hatchlings, including stragglers that were found during nest excavation, being released into the ocean.



Visitors participating in a post-emergence inspection of a sea turtle nest in the hatchery.



In 2022, a total of **12,675 hatchlings** were released into the ocean, which consist of **12,142 green sea turtle hatchlings** and **533 painted terrapin hatchlings**.

The average hatching and emergence success for 159 green turtle nests was 85.4% (SD=18.7) and 80.3% (SD=18.7). Meanwhile, 56 painted terrapin nests had an average hatching success of 76.2% (SD=28.7) and an emergence success of 53.1% (SD=32.6)

The green sea turtle hatchlings were released into the ocean at Chakar Hutan Beach immediately after they had emerged from the nests. Approximately **64 local people** joined us during the hatchling release at dusk.

Unlike sea turtles that spend most of their entire life in the ocean, painted terrapins live in the river, but they swim through the river mouth to nest on the beach. All the painted terrapin hatchlings were released at Sungai Kerteh near the **Environmental Education Centre ecoCare** which is surrounded by healthy and lush mangroves.



A painted terrapin hatchling (top left); and a few green turtle hatchlings (top right and bottom).

HATCHLING SEX RATIO

Sea turtle embryos undergo temperature-dependent sex determination (TSD), with warmer incubation temperatures producing higher proportions of female hatchlings and cooler temperatures producing more males.

Incubation period increases with temperature. The average incubation period in our hatchery was between 61 and 70 days. About 75 nests had an incubation period of more than 65 days, thus potentially producing higher ratio of male hatchlings.

We deployed three data loggers to measure respective nest during incubation. Another one was deployed as a control. We calculated the average temperature during the temperature-sensitive period (TSP) to estimate the hatchling sex ratio in each nest (Table 2).

Table 2. Incubation period, nest and control temperatures and estimated hatchling sex ratio of three nests in Chakar Hutan hatchery.

Nest	Incubation days	TSP (°C) ± SD	Control temperature (°C) ± SD	Percentage of female (%)
83KJL	69	27.4 ± 0.28	27.4 ± 0.19	0.02
CH110	62	27.9 ± 0.24	27.4 ± 0.19	0.29
CH121	66	27.5 ± 0.44	27.4 ± 0.3	0.02

NESTING TURTLE POPULATION

Ongoing monitoring of nesting activities during the nesting season helps us understand sea turtle nesting ecology (e.g., nesting interval, nest site preference and clutch size) and nesting population (e.g., population size and trend).

A total of **41 individuals** female green turtles were identified as nesting at Chakar Hutan Beach. The individual turtles were identified through tagging and photo-identification methods.

19 individuals were identified using the photo-identification method.

Fourteen of them had a tag on their flipper. Another five individuals did not have any tags. Tagging and photo-identification methods complement each other. Individual turtles can still be identified using the photo-identification method even when they have lost their tags.



Afiq, one of our interns, measuring the curved carapace length of a nesting mother post-oviposition.



Seven individual turtles were recorded to nest more than once on the beach during the monitoring period (Table 3), with an average nesting interval of 20 days. This, however, does not reflect the actual nesting interval as we did not identify all the female turtles that had nested on the beach. Besides, the turtles might have also nested elsewhere.

Table 3. Nesting information of seven individuals that nested more than once at Chakar Hutan throughout the monitoring period in 2022.

Turtle ID	Turtle name	No. of nests	Total eggs laid
CHG001F	Amo	2	147
CHG003F	Viserion	3	189
CHG009F	Fiona	3	306
CHG010F	-	2	255
CHG011F	Nunanas	2	169
CHG012F	-	2	170
CHG015F	Sari	3	282

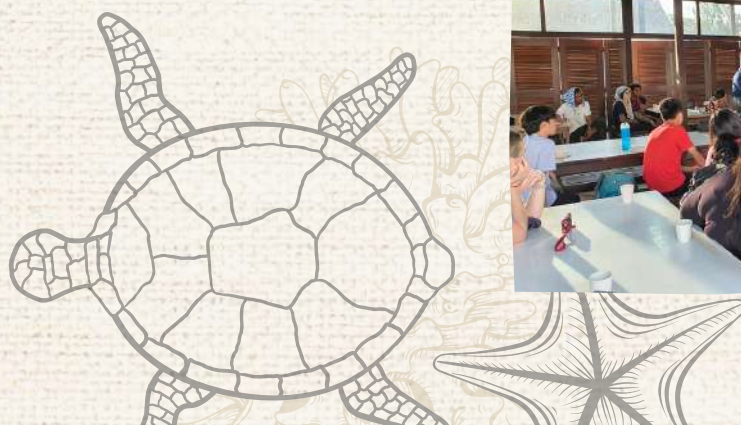
OUTREACH

Since the setup of the hatchery on 5th June 2022, we have received **120 visitors** from the local communities, professional groups and students of different ages and backgrounds. The public engagement is to raise conservation awareness by involving them in research and conservation work where they learn about sea turtles and terrapins.

Besides, two turtle talks were conducted with the International School of Kuala Lumpur (ISKL).



Releasing hatchling and giving turtle talks to the member of the public.



BEACH CLEAN-UP

We are committed to ensuring that the beach is free of marine debris for turtles to land and nest comfortably, and for hatchlings to return to the ocean safely. We conducted five beach clean-ups on the beach, involving **72 staff members, interns and volunteers** who collectively removed a total of **177 kg** of marine debris from the beach.



A collage photos during our International Coastal Clean Up at Pantai Chakar Hutan

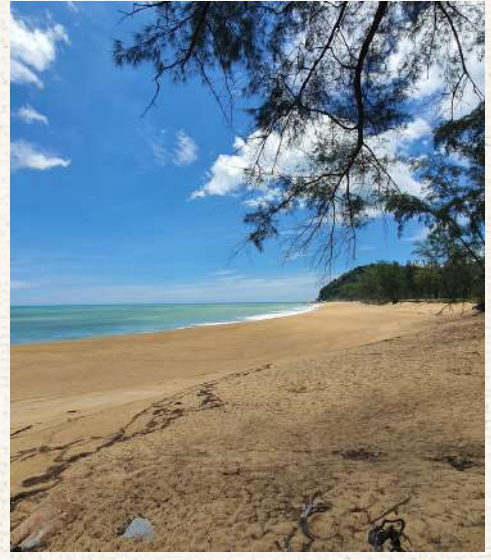
CONCLUSION

2022 was the first year that LTTW has run a turtle conservation project at Chakar Hutan. We learned a lot over the five months. We see a lot of potential with this project especially in benefitting so many people from diverse backgrounds, besides saving turtles. Not only is Chakar Hutan precious in terms of sea turtle conservation, but it also holds value in tourism. With proper planning and management, tourism and conservation can go hand in hand.

We look forward to collaborating with existing and new partners, as well as doing more outreach programmes to raise awareness. We will organise several educational activities with kindergartens, primary and secondary schools in Terengganu. The most exciting news: we will be building an information centre next to our hatchery where we will organise turtle talks and many other interactive activities. We welcome the public to visit us to learn more about our work and engage with our field activities.

With a dedicated team and strong support from stakeholders, more achievements can be unlocked at the Chakar Hutan project site in 2023.





GALLERY